1966

Bulletin - Western Michigan University: The Graduate Catalog 1966-1967

Follow this and additional works at: http://scholarworks.wmich.edu/course_catalogs

Part of the Higher Education Commons

WMU ScholarWorks Citation
http://scholarworks.wmich.edu/course_catalogs/56

This Catalog is brought to you for free and open access by the Western Michigan University at ScholarWorks at WMU. It has been accepted for inclusion in Western Michigan University Course Catalogs (1964-2016) by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Calendar of Events</td>
<td>3</td>
</tr>
<tr>
<td>Board of Trustees</td>
<td>5</td>
</tr>
<tr>
<td>Administration</td>
<td>6</td>
</tr>
<tr>
<td><strong>Section I Procedures and Regulations</strong></td>
<td></td>
</tr>
<tr>
<td>Admission</td>
<td>8</td>
</tr>
<tr>
<td>Re-entry</td>
<td>10</td>
</tr>
<tr>
<td>General Master's Degree Requirements</td>
<td>10</td>
</tr>
<tr>
<td>General Specialist's Degree Requirements</td>
<td>12</td>
</tr>
<tr>
<td>Registration</td>
<td>14</td>
</tr>
<tr>
<td>Student Load</td>
<td>14</td>
</tr>
<tr>
<td>Fees</td>
<td>14</td>
</tr>
<tr>
<td>Fellowships, Awards and Loans</td>
<td>17</td>
</tr>
<tr>
<td>University Services</td>
<td>18</td>
</tr>
<tr>
<td><strong>Section II Graduate Fields and Programs</strong></td>
<td></td>
</tr>
<tr>
<td>Programs Leading to the Master's Degree</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>19</td>
</tr>
<tr>
<td>Business Administration</td>
<td>20</td>
</tr>
<tr>
<td>Chemistry</td>
<td>20</td>
</tr>
<tr>
<td>Economics</td>
<td>21</td>
</tr>
<tr>
<td>Education</td>
<td>21</td>
</tr>
<tr>
<td>School Administration</td>
<td>22</td>
</tr>
<tr>
<td>Guidance and Personnel Services</td>
<td>23</td>
</tr>
<tr>
<td>School Psychologist</td>
<td>23</td>
</tr>
<tr>
<td>Blind Rehabilitation</td>
<td>24</td>
</tr>
<tr>
<td>Visiting Teacher</td>
<td>25</td>
</tr>
<tr>
<td>Special Education</td>
<td>25</td>
</tr>
<tr>
<td>Audio-Visual Media</td>
<td>26</td>
</tr>
<tr>
<td>Teaching at the Junior College Level</td>
<td>26</td>
</tr>
<tr>
<td>Curricula in Teaching</td>
<td>27</td>
</tr>
<tr>
<td>English</td>
<td>28</td>
</tr>
<tr>
<td>Geography</td>
<td>29</td>
</tr>
<tr>
<td>History</td>
<td>29</td>
</tr>
<tr>
<td>Home Economics</td>
<td>30</td>
</tr>
<tr>
<td>Language</td>
<td>31</td>
</tr>
<tr>
<td>Librarianship</td>
<td>31</td>
</tr>
<tr>
<td>Mathematics</td>
<td>33</td>
</tr>
<tr>
<td>Medieval Studies</td>
<td>33</td>
</tr>
<tr>
<td>Music</td>
<td>34</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>34</td>
</tr>
<tr>
<td>Physics</td>
<td>35</td>
</tr>
<tr>
<td>Political Science</td>
<td>36</td>
</tr>
<tr>
<td>Psychology</td>
<td>36</td>
</tr>
<tr>
<td>Sociology and Anthropology</td>
<td>37</td>
</tr>
<tr>
<td>Speech Pathology</td>
<td>38</td>
</tr>
<tr>
<td>Technology</td>
<td>39</td>
</tr>
<tr>
<td>Programs Leading to the Specialist's Degree</td>
<td></td>
</tr>
<tr>
<td>Specialist in Education</td>
<td>40</td>
</tr>
<tr>
<td><strong>Section III Educational Specialist and Doctoral Programs</strong></td>
<td></td>
</tr>
<tr>
<td>Programs Leading to the Educational Specialist Degree</td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>45</td>
</tr>
<tr>
<td>English</td>
<td>46</td>
</tr>
<tr>
<td>History</td>
<td>47</td>
</tr>
<tr>
<td>Administration of the Instructional Materials Center</td>
<td>49</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td>Mathematics</td>
<td>50</td>
</tr>
<tr>
<td>Programs Leading to the Doctoral Degree</td>
<td>51</td>
</tr>
<tr>
<td>Chemistry</td>
<td>53</td>
</tr>
<tr>
<td>Educational Leadership</td>
<td>54</td>
</tr>
<tr>
<td>Sociology</td>
<td>55</td>
</tr>
<tr>
<td>Section IV Description of Courses</td>
<td></td>
</tr>
<tr>
<td>School of Applied Arts and Sciences</td>
<td></td>
</tr>
<tr>
<td>Applied Science</td>
<td>58</td>
</tr>
<tr>
<td>Agriculture</td>
<td>59</td>
</tr>
<tr>
<td>Distributive Education</td>
<td>59</td>
</tr>
<tr>
<td>Engineering and Technology</td>
<td>60</td>
</tr>
<tr>
<td>Home Economics</td>
<td>63</td>
</tr>
<tr>
<td>Industrial Education</td>
<td>66</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>71</td>
</tr>
<tr>
<td>Paper Technology</td>
<td>72</td>
</tr>
<tr>
<td>School of Business</td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>74</td>
</tr>
<tr>
<td>Business Education</td>
<td>76</td>
</tr>
<tr>
<td>General Business</td>
<td>77</td>
</tr>
<tr>
<td>Management</td>
<td>79</td>
</tr>
<tr>
<td>Marketing</td>
<td>81</td>
</tr>
<tr>
<td>School of Education</td>
<td></td>
</tr>
<tr>
<td>Teacher Education</td>
<td>86</td>
</tr>
<tr>
<td>School Services</td>
<td>94</td>
</tr>
<tr>
<td>Physical Education for Men</td>
<td>101</td>
</tr>
<tr>
<td>Physical Education for Women</td>
<td>103</td>
</tr>
<tr>
<td>School of Graduate Studies</td>
<td></td>
</tr>
<tr>
<td>Graduate Studies</td>
<td>106</td>
</tr>
<tr>
<td>Librarianship</td>
<td>107</td>
</tr>
<tr>
<td>School of Liberal Arts and Sciences</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>114</td>
</tr>
<tr>
<td>Art</td>
<td>115</td>
</tr>
<tr>
<td>Biology</td>
<td>116</td>
</tr>
<tr>
<td>Chemistry</td>
<td>121</td>
</tr>
<tr>
<td>Economics</td>
<td>125</td>
</tr>
<tr>
<td>English</td>
<td>130</td>
</tr>
<tr>
<td>Geography</td>
<td>133</td>
</tr>
<tr>
<td>Geology</td>
<td>139</td>
</tr>
<tr>
<td>History</td>
<td>140</td>
</tr>
<tr>
<td>Language</td>
<td>146</td>
</tr>
<tr>
<td>Mathematics</td>
<td>152</td>
</tr>
<tr>
<td>Music</td>
<td>158</td>
</tr>
<tr>
<td>Philosophy and Religion</td>
<td>162</td>
</tr>
<tr>
<td>Physics</td>
<td>163</td>
</tr>
<tr>
<td>Political Science</td>
<td>165</td>
</tr>
<tr>
<td>Psychology</td>
<td>168</td>
</tr>
<tr>
<td>Science Division</td>
<td>172</td>
</tr>
<tr>
<td>Social Science Division</td>
<td>172</td>
</tr>
<tr>
<td>Sociology and Anthropology</td>
<td>174</td>
</tr>
<tr>
<td>Speech</td>
<td>182</td>
</tr>
<tr>
<td>Speech Pathology and Audiology</td>
<td>184</td>
</tr>
</tbody>
</table>
CALENDAR OF EVENTS

Spring, 1966

---

Final Registration ........................................ Saturday, April 23, 1966
Classes Begin .............................................. Monday, April 25, 1966
Final Day to Add Classes ................................ Monday, May 2, 1966
Diploma Applications Due for August Commencement ........ Friday, May 13, 1966
Final Day to Drop Classes ................................ Monday, May 23, 1966
Candidacy Applications Due ................................ Wednesday, May 25, 1966
Memorial Day Recess ....................................... Monday, May 30, 1966
Theses Due .................................................. Wednesday, June 1, 1966
Applications for Admission to Graduate School Due for the Summer Session .......... Wednesday, June 1, 1966
Applications for Admission to Graduate School Due for the Fall Semester .......... Wednesday, June 15, 1966
Session Ends .............................................. Wednesday, June 15, 1966

Summer, 1966

---

Final Registration ........................................ Monday, June 20, 1966
Classes Begin .............................................. Wednesday, June 22, 1966
Final Day to Add Classes ................................ Wednesday, June 29, 1966
Independence Day Recess .................................. Monday, July 4, 1966
Final Day to Drop Classes ................................ Wednesday, July 13, 1966
Candidacy Applications Due ................................ Friday, July 22, 1966
Theses Due .................................................. Friday, July 29, 1966
Session Ends .............................................. Friday, August 12, 1966
Commencement ............................................. Friday, August 12, 1966

---

Fall, 1966

---

*Limited Special Registration ................................ Saturday, August 27, 1966
Classes Begin .............................................. Tuesday, August 30, 1966
Labor Day Recess .......................................... Monday, September 5, 1966
Final Day to Add Classes ................................ Tuesday, September 6, 1966
Diploma Applications Due for December Commencement ........ Saturday, September 17, 1966
Final Day to Drop Classes ................................ Tuesday, October 11, 1966
Applications for Admission to Graduate School Due for the Winter Semester .......... Tuesday, November 1, 1966
Thanksgiving Recess Begins ................................ Wednesday, November 23, 1966
  12:00 noon
Classes Resume ........................................... Monday, November 28, 1966
Candidacy Applications Due ................................ Monday, November 28, 1966
Theses Due ................................................ Saturday, December 3, 1966
Semester Ends ............................................. Saturday, December 17, 1966
Commencement ............................................. Saturday, December 17, 1966

---

*By Special Permission Only. Students are expected to pre-register. See Schedule of Classes for dates.
Winter, 1967

*Limited Special Registration .................. Tuesday, January 3, 1967
Classes Begin .................................. Wednesday, January 4, 1967
Final Day to Add Classes ...................... Wednesday, January 11, 1967
Diploma Applications Due for April Commencement .......... Saturday, January 14, 1967
Final Day to Drop Classes ..................... Wednesday, February 15, 1967
Candidacy Applications Due .................... Saturday, March 25, 1967
Theses Due ..................................... Saturday, April 1, 1967
Semester Ends .................................. Saturday, April 15, 1967
Commencement .................................. Saturday, April 15, 1967

Spring, 1967

*Limited Special Registration .................. Tuesday, April 25, 1967
Classes Begin .................................. Wednesday, April 26, 1967
Final Day to Add Classes ...................... Monday, May 1, 1967
Diploma Applications Due for August Commencement ........... Friday, May 12, 1967
Final Day to Drop Classes ..................... Monday, May 15, 1967
Candidacy Applications Due .................... Wednesday, May 24, 1967
Memorial Day Recess ......................... .....Tuesday, May 30, 1967
Theses Due ..................................... Wednesday, May 31, 1967
Applications for Admission to Graduate School Due for the Summer Session ................. Thursday, June 1, 1967
Applications for Admission to Graduate School Due for the Fall Semester .................. Thursday, June 15, 1967
Spring Session Ends ............................ Friday, June 16, 1967

Summer, 1967

Final Registration by Special Permission Only ........ Tuesday, June 20, 1967
Classes Begin .................................. Wednesday, June 21, 1967
Final Day to Add Classes ...................... Wednesday, June 28, 1967
Independence Day Recess ....................... Tuesday, July 4, 1967
Final Day to Drop Classes ..................... Wednesday, July 12, 1967
Candidacy Applications Due .................... Friday, July 21, 1967
Theses Due ..................................... Friday, July 28, 1967
Summer Session Ends ........................... Friday, August 11, 1967
Commencement .................................. Friday, August 11, 1967

*By Special Permission Only. Students are expected to pre-register. See Schedule of Classes for dates.
Board of Trustees

Dr. Julius Franks, Jr., Grand Rapids  Term Expires
December 31, 1966
Philip N. Watterson, Plainwell  December 31, 1966
Mildred Swanson Johnson, Muskegon  December 31, 1968
Dwight L. Stocker, Kalamazoo  December 31, 1968
Fred W. Adams, Grosse Pointe  December 31, 1970
Alfred B. Connable, Kalamazoo  December 31, 1970
Dorothy Upjohn Dalton, Kalamazoo  December 31, 1972
John R. Dykema, Grosse Pointe Farms  December 31, 1972

James W. Miller, Ex-Officio, Chairman
Alfred B. Connable, Vice Chairman
John J. Pruis, Secretary
Robert B. Wetnight, Treasurer
Administration

ADMINISTRATIVE OFFICERS

James W. Miller, Ph.D., LL.D., President
Russell H. Seibert, Ph.D., Vice President for Academic Affairs
L. Dale Faunce, Ed.D., Vice President for Student Services
John J. Pruis, Ph.D., Vice President for Administration and Secretary of the Board of Trustees
Robert B. Wetnight, M.B.A., C.P.A., Vice President for Finance
George G. Mallinson, Ph.D., Dean, School of Graduate Studies
Leo C. Stine, Ph.D., Assistant Dean, School of Graduate Studies
Sid Dykstra, Ph.D., Director, Graduate Student Personnel

GRADUATE STUDIES COUNCIL, 1966-67

George G. Mallinson, Ph.D., Dean, School of Graduate Studies, Chairman
David Adams, M.A., Department of Teacher Education
William Burdick, Ph.D., Department of General Business
Joseph Eisenbach, Ed.D., Special Education
Milton Greenberg, Ph.D., Department of Political Science
James Griggs, Ed.D., Dean, School of Education
Oscar Horst, Ph.D., Department of Geography
Chester Hunt, Ph.D., Department of Sociology
George Kohrman, Ed.D., Dean, School of Applied Arts and Sciences
Joseph McCully, Ph.D., Department of Mathematics
Gerald Osborn, Ph.D., Dean, School of Liberal Arts and Sciences
James Powell, Ph.D., Department of Mathematics
Arnold Schneider, Ph.D., Dean, School of Business
Frank S. Scott, Ed.D., Department of Engineering and Technology
Russell Seibert, Ph.D., Vice President, Academic Affairs
Betty Taylor, Ph.D., Department of Home Economics
School of
Graduate Studies

GEORGE G. MALLINSON,
Dean

LEO C. STINE,
Assistant Dean

SID DYKSTRA,
Director, Graduate Student Personnel

An independent graduate program leading to the degree of Master of Arts in various curricula in the field of Education was first offered at Western Michigan University in the fall semester of 1952-53. Since then programs that lead to the Master of Arts degree in Biology, Blind Rehabilitation, Chemistry, Economics, English, Geography, History, Home Economics, Language, Mathematics, Medieval Studies, Occupational Therapy, Physics, Political Science, Psychology, Sociology, and Speech Pathology have been developed. The University also offers the Master of Business Administration degree; the Master of Science degrees in Librarianship and in Technology; and a Master of Music degree.

A Specialist in Education degree in School Administration is now offered upon completion of a sixth-year program for Directors of Curriculum, Guidance, Special Education, School Psychological Examiners, and administrators of elementary and secondary schools. The University is planning an Educational Specialist degree for teachers and community college faculty members in certain subject matter areas.

Plans are also being developed for Doctoral programs in a number of areas.
SECTION I

Procedures and Regulations

Students entering the 1966 Spring or Summer sessions will be governed by this Bulletin of the School of Graduate Studies. For a list of the courses to be offered in each session and semester, refer to the schedule of classes available through the Registrar's office.

ADMISSION — DATES

Admission to the School of Graduate Studies is required for permission to register for graduate classes. Students planning to register for courses taught on campus must apply for admission no later than:

- June 15 for Fall Semester
- November 1 for Winter Semester
- March 15 for Spring Session
- May 15 for Summer Session

Foreign students must apply for admission by April 15 for the fall semester and September 15 for the winter semester.

Students planning to register for extension courses must secure admission before registering for classes.

Because of overcrowded conditions which necessitate restricting enrollment, admission to the School of Graduate Studies does not carry with it a guarantee that the student will be accepted for registration for classes in any given semester.

ADMISSION — FEES

All students applying for admission to the School of Graduate Studies except those whose fees are covered by special grants must send ten dollars with their applications.

ADMISSION — TYPES

1. Admission Without Reservations. This type of admission is awarded to the student whose previous academic record merits such consideration and who satisfactorily passes the English examination and meets the
requirements for the curriculum selected. Acceptance to a definite program of study leading to a degree is dependent upon the approval of the unit in which the student plans to study. A grade-point average of at least 2.6 (A=4) for the last two years of undergraduate work is normally required for admission. A few students may be admitted by the Admissions and Standards Committee whose undergraduate record falls below that point. Students with an M.A. degree who wish to study in a second field for a second M.A. degree will ordinarily be admitted without reservation and without requiring an English examination. All other students must pass an English examination if they desire admission to a program before being granted admission without reservation.

2. Tentative Admission Pending Receipt of the Bachelor’s Degree. A student may receive tentative admission during the final semester of his undergraduate work. Final admission will be determined when a transcript is submitted giving evidence of satisfactory completion of the Bachelor’s degree. Such admission requires the completion of the English examination.

3. Dual Enrollment Admission. Senior students at Western Michigan University, who need six hours or less to complete the requirements for the Bachelor’s degree, may seek admission to the School of Graduate Studies during the semester prior to graduation. If admission is granted, the student may elect graduate courses, in addition to those required at the undergraduate level to complete the Bachelor’s degree, to encompass a full academic program. Such dual enrollment is permitted for one semester only. Graduate credit thus earned may not be used to meet undergraduate requirements.

4. Admission to Non-Degree Status. A student who does not qualify for admission to a program or does not desire to enroll in a degree program but wishes to enroll in courses may secure admission as a non-degree student. A transcript of his undergraduate work must be submitted. A non-degree student need not take the English entrance examination. The School of Graduate Studies gives no assurance that work taken as a non-degree student will be counted toward graduation or that the student will later be accepted into a degree program.

5. Admission from a Non-Accredited College. A student who has received a Bachelor’s degree from a non-accredited college, but who otherwise meets all the requirements for admission may be permitted to elect six hours of graduate work with the stipulation that his admission will be reviewed after the completion of the six hours. This admission will also require an English entrance examination.

6. Admission as Guest Matriculant. A student who is already enrolled in the Graduate School of another college or university may enroll for courses at Western Michigan University as a Guest Matriculant. Application forms for such admission are available at the Graduate Office.
ADMISSION — PROCEDURES

Admission to the School of Graduate Studies is secured through the following steps:

1. Request the School of Graduate Studies to send an Application for Permission to Enroll.
2. Determine from Section I of the Bulletin the type of admission that is desired.
3. Select from Section II or III of the Bulletin the program of study that will be pursued.
4. Return the Application for Permission to Enroll before the published deadlines for admission.
5. Request the Registrar of all colleges previously attended, except Western Michigan University, to send transcripts of credits to the School of Graduate Studies, Western Michigan University. Transcripts are also due before the dates established as deadlines for admission.
6. Take the English entrance exam at the time specified by the School of Graduate Studies after applying for admission.
7. Check the calendar of events listed in the Bulletin for the registration days of each semester or session.

RE-ENTRY

Ordinarily students who have once been admitted to the School of Graduate Studies need not file for re-entry except for the following reasons:

1. They have taken only extension classes.
2. They have not taken a class on campus within the past two calendar years.
3. They have completed a degree and received a diploma.

If re-entry is necessary, a student must notify the Graduate Office no later than two weeks before the beginning of the registration period in which the student intends to register.

GENERAL REQUIREMENTS FOR A MASTER’S DEGREE

1. Admission — (See Calendar of Events for application deadline.)
   a. Bachelor's degree.
   b. Transcripts of all courses taken beyond high school.
   c. An average grade of at least 2.6 (A=4) in the last two years of undergraduate work.
   d. Approval of Application for Permission to Enroll.
   e. Acceptance by a unit for a definite program of study.
f. Passing of the English entrance exam. A non-credit English course must be passed by students failing the English entrance exam.

2. Candidacy — (See Calendar of Events for application deadline.)
   a. An application for Candidacy for the Master's degree is required during the semester in which the tenth hour of graduate credit at Western Michigan University is being completed. Candidacy boards meet the second week of each semester or session.
   b. Deficiencies indicated at the time of admission must be removed within the first ten hours of graduate study.
   c. An average grade of at least 3.0 (A=4) must be secured in courses taken on campus. A 3.0 overall average is also required.

3. Graduation — (See Calendar of Events for application deadline.)
   a. Diploma Application
      A diploma application must be submitted no later than three months prior to Commencement.
   b. Minimum Credit Hours
      Completion of a program of study outlined by an advisor including a minimum of 30 hours of graduate credit. Only courses numbered 500 and above are acceptable for graduate credit. One-half of the credits earned must be in courses numbered 600 or above.
   c. Residence Credit
      Completion of a minimum of one full time summer (5 semester hours minimum) or one semester (ten semester hours minimum) of residence on campus is required. Students who are employed over a twelve-month period may register for four consecutive semesters of on campus work in lieu of the five or ten hour requirement. Of the total of 30 semester hours, a minimum of 18 hours must be taken on the campus of Western Michigan University except for those students who study in an approved residence center of Western Michigan University. Such students may offer a maximum of 20 hours of off-campus work. Work transferred from other institutions must be included within the 12 hours maximum off-campus work permitted, or in the case of the student studying in a residence center within the 20 hours of off-campus work permitted.
   d. Grade Point Average
      A 3.0 average (A=4) is required for courses taken on campus as well as an overall 3.0 average. Grades of Incomplete will become "E" unless completed within one calendar year. Students who seek an extension of time must notify the Graduate Office within the year indicating the circumstances that warrant such consideration. This ruling does not apply to the course, Thesis 700.
   e. Hours After Candidacy
      The election and completion of at least six hours is required after being approved for Candidacy.
f. Transfer Credit
Six hours of graduate credit may be transferred from other schools provided:

1) The credits were earned in institutions accredited for graduate study and are of B grade or better.
2) The School of Graduate Studies approves the credits for transfer.
3) The student's adviser verifies that the credits contribute to the student's program of study.

g. Time Limit
All work accepted for the degree program must be elected within six years preceding the date on which the graduate degree is conferred.

h. Thesis
Students writing a thesis should consult the most recent edition of Format for Master's Theses, Specialist in Education Project, and Graduate Reports.

GENERAL REQUIREMENTS FOR A SPECIALIST DEGREE

1. Admission
   a. See specific program description to determine which of the following minimal entrance requirements apply:
      (1) Bachelor's degree — Educational Specialist in some areas.
      (2) Minimum of 20 hours beyond Bachelor's degree in Specialist in Education.
      (3) Master's degree — Educational Specialist in some areas.
   b. Transcripts of all courses beyond high school.
   c. An average grade of at least 2.6 (A=4) in the last two years of undergraduate work for all programs permitting entrance with Bachelor's degree. An average grade of at least 3.25 for all work undertaken beyond the Bachelor's degree.
   d. Personal interviews with representatives of the School of Graduate Studies and the unit in which the student desires to study.
   e. Approval of both the School of Graduate Studies and the unit.
   f. Attainment of the minimal score on the English entrance examination and the verbal and quantitative sections of the Graduate Record Examination or a prescribed substitute.

2. Candidacy
   a. An application for Candidacy for a Specialist Degree must be filed during the semester in which the student completes his first 10 hours after admission.
b. A grade point average of at least 3.25 must be secured in all graduate work taken.

3. Residence Requirement
   a. One semester on the campus of Western Michigan University — or
   b. Students studying for Specialist in Education may substitute two consecutive summer sessions and participation in a prescribed seminar during the intervening period.

4. Grade Point Average
   a. A grade point average of 3.25 is required for all work taken on the campus at Western Michigan University as well as all work taken for the degree.

5. Transfer Credit
   Students who have taken all of the credits for their M.A. degree at Western Michigan University may be permitted to transfer a maximum of twelve credits from another institution for an Ed.S. degree.
   Students who have already transferred six credits for their M.A. degree at Western may transfer a maximum of six additional credits for an Ed.S. degree.
   Students who have secured their M.A. degree at an institution other than Western may transfer a maximum of thirty credits for an Ed.S. degree.
   Units offering Specialist degrees are expected to give credit to transfer work only when the work is applicable and when it meets the same standards required for work completed on Western's campus.

6. Extension Credit
   Credit for work done in extension or residence centers may be offered up to a maximum of 26 hours. This maximum must be reduced by the amount of transfer credit accepted. Students entering with a Master's degree may offer up to 6 credit hours of extension or residence center credit in addition to work completed as a part of their Master's degree.

7. Time Limit
   All work accepted for the degree program must be elected within seven years prior to the date of receipt of the Specialist degree. Exception may be made for work completed as part of a Master's degree earned prior to admission. Students entering with a Master's degree will be permitted only five years instead of seven.

8. Thesis or Graduate Paper
   All students completing the Specialist degree must present a thesis or major project paper in a form acceptable to the unit and the School of Graduate Studies.

9. Minimum Credit Hours
   The Specialist degree requires the completion of 60 hours of acceptable work beyond the Bachelor's degree.
10. Diploma Application

A diploma application must be submitted no later than three months prior to Commencement.

REGISTRATION

Registration will be held on the dates listed in the Schedule of Classes, which is published prior to each semester and session. This Schedule will be sent upon request and should be consulted for details regarding the time and place of meeting and graduate classes. Students who are permitted because of extraordinary circumstances to enroll after the final day scheduled for registration are required to pay a late enrollment fee of $5.00.

Due to crowded conditions the University may not be able to accommodate all graduate students who wish to register for classes in a given semester. Therefore students are urged to register as early as possible. The School of Graduate Studies cannot insure that students desiring to register after July 1 for the fall semester will be permitted to do so.

Changes in Enrollment: Any classes added to the student's schedule must be added by the end of the first complete week of each semester and session. A student may drop graduate courses through the third week of the spring and summer sessions or the sixth week of the fall or winter semesters. The procedure will be announced in the Schedule of Classes.

STUDENT LOAD

The load for graduate students is governed by the following regulations:

1. The normal load for a graduate student devoting full time to graduate study is twelve semester hours each semester. The maximum load is thirteen semester hours.

2. The maximum load for graduate students is seven semester hours during the spring and summer sessions.

3. Part-time graduate students, if employed during the fall and winter semesters as full-time teachers or school administrators, may elect graduate courses granting not in excess of four hours of credit in a semester. An exception to this rule is made with the course, Thesis 700, which the student may elect during one semester for six hours of credit. Students employed full time in other fields may elect a maximum of six hours of graduate credit.

4. With permission of the Dean, a student employed full time in a field of education may elect graduate courses granting five hours of credit in a semester provided such credit shall not involve more than two graduate courses. Such an exception may be granted
only once during the work for the Master's degree. These restrictions apply to all graduate courses a student may elect during a semester whether taken on campus, in extension and/or at some other institution.

**STUDENT FEES**

The following fees will be charged for graduate study:

<table>
<thead>
<tr>
<th>Hours</th>
<th>Resident Students</th>
<th>Non-Resident Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>$44.00</td>
<td>$88.00</td>
</tr>
<tr>
<td>3-4</td>
<td>67.00</td>
<td>134.00</td>
</tr>
<tr>
<td>5-6</td>
<td>90.00</td>
<td>180.00</td>
</tr>
<tr>
<td>7-8</td>
<td>112.00</td>
<td>224.00</td>
</tr>
<tr>
<td>9-10</td>
<td>136.00</td>
<td>272.00</td>
</tr>
<tr>
<td>11 or more</td>
<td>150.00</td>
<td>300.00</td>
</tr>
</tbody>
</table>

For the Spring and Summer Sessions, the above schedule applies up to a maximum of $75 per session for resident students and $150 for non-residents.

**POLICY FOR REFUNDS AND CHANGE OF CLASS LOAD**

All changes in registration or complete withdrawal must be cleared with the Graduate Office. A student who withdraws from the University or who reduces his credit hour load, resulting in lower fees, will be granted a partial refund (see schedule below) of the total paid—subject to the following conditions:

1. Reducing Credit Hour Load: A refund will not be granted for reducing the credit hour load after the final day for adding a course or more than seven calendar days after the last official registration day as established by the Registrar.

2. Withdrawal from the University: A refund will not be given for withdrawal from the University after the 49th calendar day after the last established registration day.

**Refund Schedule:**

1. After registration and less than 8 calendar days after the last established registration day—90% of total.

2. More than 7 and less than 22 calendar days after the last established registration day—60% of total.

3. More than 21 and less than 36 calendar days after the last established registration day—40% of total.
4. More than 35 and less than 50 calendar days after the last established registration day—20% of total.

Note: The refund date will be determined by the date that the Registrar receives a completed Withdrawal Request card or Application For Change In Enrollment form. The last day of class attendance or date of approval by the department head for reducing credit hours does not determine the refund date under the above refund conditions and schedule.

RESIDENCY

The following policy adopted by the Board of Trustees of Western Michigan University on May 15, 1964, applies to all students:

1. The residence of a student who is a minor follows that of his parents or legal guardians, except that a minor student who comes to the institution from another state or country cannot be registered as a resident of this state on the basis of having a resident of this state as a guardian except on permission of the Board of Trustees.

2. A person who is at least 21 years of age at the time of registration in the institution and who has resided in this state six months next preceding the date of registration without being registered at a college or university during that period is deemed a resident of this state for the purpose of such registration.

3. The residence of a wife follows that of her husband, except that a woman student who is a resident under paragraph 1 or 2 may continue to register as a resident of this state although subsequently marrying a non-resident student or other non-resident.

4. No person is deemed to have gained or lost residence in this state while a student at any institution in this state, public or private, except by changes in status effected under paragraphs 1, 3 or 5.

5. A person in the service of the United States, and his wife or minor children, who have met the six months residence requirements in paragraph 2, may register as residents of this state.

6. An alien lawfully admitted for permanent residence in the United States and who has obtained his permanent visa, and his wife or minor children, who have met the other requirements herein for residence, may register as residents of this state.

7. A member of the University staff and his dependents may register as residents of this state.

It shall be the duty of every student at registration, if there are any possible questions as to his right to legal residence in Michigan under the rules stated above, to raise the question with the Controller and have such questions passed upon and settled prior to registration.
FELLOWSHIPS, AWARDS AND LOANS

Graduate Fellowships: Fellowships valued at $2,400 for the academic year will be made available to selected students holding bachelor's degrees from approved colleges and universities. These fellowships are granted on the basis of merit to persons planning to pursue full-time work on the campus leading to advanced degrees. Such persons must possess a combination of qualities indicating potential leadership in their respective fields with specific emphasis on high scholarship and desirable personal attributes.

Professional participation of about fifteen hours per week is required of fellows, consistent with their educational aims and objectives. Candidates may carry from eight to twelve semester hours of graduate work each of the two semesters. The student must pay his fees out of the $2,400. The application forms may be secured from the Graduate Office. All applications, transcripts, and letters of recommendation must be submitted by February 15.

Graduate Associateships: Associateships carrying a somewhat greater stipend that the Fellowships will be offered to a limited number of graduate students who have completed a Master's degree and are registering for work on an advanced degree. Students interested in such assistance should contact the Director, Graduate Student Personnel.

Graduate Assistantships: Many of the departments provide graduate assistantships with stipends of approximately $2,400 to promising students. Students receiving an assistantship are expected to participate in approximately fifteen hours per week in professional service in the department and to adjust their academic load accordingly.

Elmer H. Wilds Graduate Award: Each calendar year the Graduate Studies Council selects one or more graduate students whose achievement and potential bear evidence of outstanding educational leadership. This student or students will be designated as the Elmer H. Wilds Scholar. In order to be eligible for the award, a student must have the following qualifications:

1. A point-hour ratio of at least 3.9 for the total graduate program including transferred credit.
2. A high degree of integrity as revealed in the student's relationships with the faculty and reports of those who work with him.
3. A high moral standard as revealed in the student's personal habits.
4. Attention to personal appearance.
5. A high degree of ability to communicate in class and in conversation.

Loans: Graduate students who enroll for a minimum of ten hours of on-campus credit in a semester may qualify for some type of student loan. Students desiring information regarding a student loan should contact the office of Student Financial Aid.
UNIVERSITY SERVICES

Housing: All questions about room, board, and other living expenses should be addressed to the Dean of Men or the Associate Dean of Students (Women). Graduate students are subject to the rules of the Dean of Men and Associate Dean of Students and to the other general regulations of Western Michigan University. Foreign students should contact the Foreign Student Adviser.

Placement Service for Graduate Students: Employing officials representing business, industry, governmental agencies, and educational institutions frequently have desirable positions for which they are seeking candidates with training beyond the Bachelor's degree. Any graduate students who wish to be considered for such positions should be on the active placement list.

Enrollment in the School of Graduate Studies entitles any student to free placement service whether or not his undergraduate work was taken at Western Michigan University. Students not already registered with the Placement Office are invited to do so. Those graduate students formerly enrolled with the Placement Office may reactivate their credentials by furnishing the office with current information concerning their employment and advanced study.

Complete information and registration materials may be secured in the Placement Office of Western Michigan University.
SECTION II

Graduate Fields and Programs

GENERAL REQUIREMENTS

Each degree candidate must choose a graduate program that is compatible with his professional objectives. The programs listed on the following pages have been developed to provide students with the basic experiences that implement these objectives. The programs are, however, sufficiently flexible to allow for the differing needs of individual students.

It is obvious that growth in personality and the development of professional abilities are aims of primary importance in graduate education. Hence, through the counseling process, graduate advisers will help the students choose courses, both cultural and professional, to meet their individual needs. Courses and experiences should be chosen so that the graduate student becomes a more mature and professionally proficient person—a person with greater professional skill, increased ability to analyze and interpret life situations, and greater insight into problems involved in professional leadership.

Many of the courses listed will not be offered every semester or Summer Session. By studying “the Schedule of Classes,” the student will find the session or sessions when the desired courses are available. Each student is expected to work out his graduate program with his advisor.

MASTER'S DEGREE PROGRAMS

Biology

Clarence J. Goodnight, Adviser

The master's degree in Biology provides a general background in the field with a limited amount of specialization in the area of the student's major interest. It is designed to meet the needs of people in teaching, research, laboratory and field work, and conservation. It may be used as a foundation for continued graduate work leading to a doctor's degree at another institution, or may be considered terminal.

To satisfy the requirements for the master's degree in Biology, a student must successfully complete a minimum of 30 hours of graduate work in Biology and related areas. The choice of courses will be made with the recommendation of the student's advisory committee and must be related to the student's goals. Successful completion of a qualifying examination is required for admission to candidacy in the Biology program.

A thesis must be prepared under the direction of the advisory committee. The chairman of the student's advisory committee will be a member of the graduate faculty having competence in the area of the student's major interest. Specialization is permitted in most of the major areas of biology.
Business Administration

Leo Niemi, Chairman of Graduate Business Programs

The Master of Business Administration degree program has been established to prepare men and women to operate effectively in executive and administrative positions in business and government. The degree is designed to meet the needs of students with baccalaureate degrees in business, liberal arts, science, engineering and related fields, who wish graduate education in one or more areas of business administration. The participant is challenged to develop the judgment, discriminating capacity, knowledge and understandings that will permit him to work efficiently in administrative and other leadership roles. Under the guidance of the graduate staff of the School of Business, the participant is provided personal programming in the selection and arrangement of his courses.

The MBA degree can be earned by completion of a program approved by the candidate’s graduate adviser consisting of either 33 hours of course work, or 24 hours minimum of course work and a thesis.

Undergraduate deficiencies, as determined by the graduate adviser must normally be met prior to admission to candidacy.*

The student's program will usually consist of coursework in (1) his area of concentration, (2) other areas of business that meet his educational objectives, and (3) areas outside the School of Business with special emphasis on economics and the behavioral sciences.

The Admission Test for Graduate Study in Business and the English Test are also required of all applicants. For the part-time student, residence requirements may be fulfilled by taking one or more courses during four consecutive semesters.

Chemistry

Lillian H. Meyer, Adviser

The master’s degree in Chemistry is planned to provide a broad background in the various fields of chemistry with concentration in one.

Entrance requirements include admission to the School of Graduate Studies and the attainment of a satisfactory grade in qualifying examinations covering the fields of General, Analytical, Organic, and Physical Chemistry. These examinations may be taken on the following dates: June 20, 1966, January 3, 1967, April 22, 1967, June 29, 1967, 9:00 a.m. or 1:00 p.m.—Any; August 25, 1966—9:00 a.m., General—1 p.m., Analytical; August 26, 1966—9:00 a.m., Organic—1:00 p.m., Physical. Deficiencies indicated by these examinations may be removed only by the completion of appropriate undergraduate courses with a minimum grade of B.

The student is required to elect a minimum of twenty to twenty-four hours in the field of Chemistry, including the thesis. A final oral examination by the student’s graduate committee is a requirement for the degree. Course work will also include from six to ten hours in a related
field or fields. The course sequence will include (if not previously elected):

2. 520 Advanced Analytical Chemistry.
3. 505 Chemical Literature.
4. 601 Graduate Seminar, to be elected for two semesters.
5. Thesis.

Economics

Robert S. Bowers, Adviser

In order to earn the Master of Arts degree in Economics, the following departmental requirements must be met:

1. For admission to candidacy, satisfactory completion, at the graduate and/or undergraduate levels, of a total of at least twenty-four hours in the social sciences with a minimum of ten hours in economics, or in equivalents approved by the graduate adviser.
2. For graduation, satisfactory completion of a minimum of twenty to twenty-four hours of graduate work in the field of economics and from six to ten hours in a related field or fields. Specific graduate requirements for the offerings in economics include (a) six hours of course work in economic thought and theory; (b) a minimum of six hours in one of the following areas of concentration; economic theory, labor economics, governmental economics and regulated industries, international economics, economic development and regional studies, and finance; (c) a course in economic statistics and (d) a seminar in the area of concentration.
3. Upon recommendation of the major professor, the completion of a thesis.
4. Successful completion of an oral examination if required by the Department.

Education

William P. Viall, Chairman of Advisers

The degree of Master of Arts in the field of Education is awarded in twenty-seven curricula, divided into the following general categories: 1) School Administration, 2) Guidance and Personnel Services, 3) School Psychologist, 4) Blind Rehabilitation, 5) Visiting Teacher, 6) Special Education, 7) Teaching at the Junior College Level, and 8) Curricula in Teaching.

The first six of these categories are provided through the Department of School Services of the School of Education. Teaching at the Junior College Level and the Curricula in Teaching are provided by the Department of Teacher Education in cooperation with a number of departments in the schools of Applied Arts and Sciences, Business, and
Liberal Arts and Sciences. These curricula are planned to provide professional preparation for students who are interested in teaching, administration, and certain specialized positions in elementary and secondary schools and junior colleges. The Guidance and Personnel Services curriculum may also be chosen by individuals interested in the ministry, business counseling and counseling positions in social service occupations. With the exception of students in the above categories who are interested in Guidance and Personnel Services and those students who plan to teach at the junior college level, all students applying for Candidacy in the curricula of the School of Education are expected to have completed a minimum of fifteen hours of undergraduate work in professional education. In some instances students may present equivalent preparation when such preparation is approved by the School of Education.

**CURRICULA PROVIDED BY THE DEPARTMENT OF SCHOOL SERVICES**

The degree of Master of Arts offered by the Department of School Services is awarded in eight curricula intended to prepare personnel for positions in educational leadership and services which are largely non-instructional in nature. In view of the fact that many students who complete this degree will wish to continue work toward further degrees, students who select such curricula should keep in mind the requirements of the advanced degree in selecting their Master's curriculum.

**School Administration**

The following curricula are offered in the general category of School Administration. Adviser for each program are also listed:

- **Curriculum Development and Coordination**  
  *Adviser:* Dorothy McCuskey

- **Elementary School Administration and Supervision**  
  *Adviser:* James Davenport

- **General School Administration and Supervision**  
  *Adviser:* Harold Boles

- **Secondary School Administration and Supervision**  
  *Adviser:* Donald Weaver

Students in all School Administration curricula are expected to have at least one year of teaching experience before Candidacy. All of these curricula have the same general requirements which include a minimum of thirty semester hours of graduate work in the following areas:

1. Twelve hours, consisting of three hours in each of the core courses; 601 Introduction to Educational Research; 602 Curriculum Principles; 603 Social and Philosophical Foundations of Education; 604 Psychological Foundations of Education; *or equivalent* as approved by the student’s adviser.
2. Ten hours, to be selected by the student and his adviser, generally from the fields of Anthropology, Business, Economics, History, Librarianship, Political Science, Psychology, Sociology and Speech, although exceptions may be made.

3. Eight hours in the major field which must include Education 660, Principles of Educational Leadership, 3 hours; Education 667, Administration of School Personnel, 2 hours; and three hours in either Education 613, Elementary Administration and Supervision; Education 623, Supervision of Instruction; or Education 624, Secondary Administration and Supervision.

Guidance and Personnel Services

Advisers: Robert L. Betz, Kenneth B. Engle, Neil Lamper, and Gilbert Mazer

Prerequisite: A minimum of one year of teaching experience (or equivalent) before graduation, if the student intends to serve in an elementary or secondary school.

The curriculum for Guidance and Personnel Services requires the following:

1. Ten hours consisting of 601, 602, 680 (The Personnel Worker and his Role)
2. Minimum of eight hours consisting of two hours in 582, Information Service and Guidance, and a minimum of six hours of Sociology and Psychology.
3. Twelve hours in the major area, consisting of 681, Organization and Administration of Student Personnel Services, 4 hours, or 682, Research in Guidance and Personnel Services, 4 hours; and 683, Theory and Laboratory Practice in Counseling, 4 hours, and 684, Supervised Practicum and Professional Experiences, 4 hours.

School Psychologist

Adviser: Stanley Kuffel

Prerequisite: Michigan teaching certificate and major or minor in psychology to include courses deemed advisable by the Psychology Department. Two years of teaching experience required before graduation.

To satisfy the requirements in this curriculum the student must elect courses from the offerings in education and psychology as follows: Education 534, 585, 604, and 610; Psychology 560, 624, 650, 651, 661, 662, 680, 681, and 682. Substitutions may be made in certain cases with the consent of the graduate adviser.

The psychology courses deemed advisable for a background in their program include Abnormal Psychology, Psychology of Personality, Laboratory in Psychological Testing, Elementary Statistical Methods in Psychology, Mental Testing, Elementary Experimental Psychology, Learning and Memory, or their equivalents. They must be taken either at the undergraduate level or made up with additional graduate courses.
A minimum of thirty hours in courses approved by the Psychology Department will qualify a student for a Master's degree in School Psychology.

Upon satisfactory completion of the School Psychologist program and of a 500 hour internship, the student may qualify for approval to work as a school diagnostician under the laws of the state of Michigan.

BLIND REHABILITATION

Western Michigan University, in cooperation with the Vocational Rehabilitation Administration Office of Health, Education, and Welfare, is offering the following graduate programs in Blind Rehabilitation:

Orientation and Mobility Specialist

Advisers: Donald Blasch, Stanley Suterko

The purpose of an Orientation and Mobility Specialist is to teach blind persons to move about effectively, efficiently, safely and gracefully in familiar and unfamiliar environments. An essential part of the re-education of the blind is to train them to utilize more effectively their senses that are still intact.

Students will be selected for this program on the basis of demonstrated mature judgment, emotional stability, leadership qualities, and good academic ability. They should have completed their bachelor's degree, preferably with some background in education, sociology and the biological sciences. They must be in good physical health and have normal or correctable vision to approximately 20/20.

The program requires three semesters for completion. The first two semesters are spent in residence at Western Michigan University in academic study, together with elementary and intermediate training in orientation and mobility on an individual basis. The third semester will involve an internship at Veterans Administration Hospital, Hines, Illinois, where the trainees will receive clinical training and practicum in orientation and mobility. The successful completion of 37 semester hours are required to receive the degree of Master of Arts.

Home Teachers of the Adult Blind

Adviser: Ruth Kaarlela

The clinical training of Home Teachers of the Adult Blind has been established to prepare men and women to teach blind adults in their homes and communities. Their purpose is to assist the blind individual to achieve his maximum degree of independence and personal and social fulfillment.

The prerequisite for admission is a bachelor's degree from an accredited college or university with a major in the behavioral sciences. Successful completion of 40 semester hours of graduate credit is required for the Master's degree. Twenty-eight semester hours will be earned during two semesters of academic study in residence at Western Michigan University. Twelve semester hours will be earned during two
additional semesters of internship and residency in field placements at accredited agencies for the blind. A professional paper is also required.

Visiting Teacher

Advisers: Nellie Reid, Frank Heger

The program for the preparation of Visiting Teachers is designed to meet the requirements for full approval by the Department of Public Instruction for students enrolling in this curriculum. Thirty hours of graduate work in Education, Psychology, and Social Work are required.

The Visiting Teacher Curriculum has developed as a cooperative program with the School of Social Work at the University of Michigan. From sixteen to eighteen hours of course work is taken at Western Michigan University and from twelve to fourteen hours at the University of Michigan.

Other requirements:
1. Candidates must possess a valid teaching certificate.
2. Candidates must have three years of teaching experience or equivalent experiences with children and youth.
3. Candidates must spend at least one semester or summer session at the University of Michigan.

Special Education

Advisers: Emotionally Disturbed, Kristen Juul; Mentally Handicapped, Joseph Eisenbach; Crippled and Homebound, Isadore Turansky

The Master of Arts degree in Special Education is awarded under three different circumstances:
1. Graduate students and teachers who already hold the Bachelor's degree in elementary or secondary education may take the courses required for the certification of teachers of the mentally handicapped, the emotionally disturbed, or the crippled and homebound. These courses may also be applied toward a Master of Arts degree.
2. A Master of Arts degree is granted to teachers who have their undergraduate training in some specific area of special education. The advanced degree is broadly designed to acquaint teachers with a variety of handicaps so that they have a more comprehensive understanding of the children with whom they work in view of the fact that most exceptional children have more than one handicap.
3. A Master of Arts degree in the Education of Emotionally Disturbed and Mentally Handicapped Children is awarded to teachers who have already received their Bachelor's degree and completed an undergraduate major in these fields. The objectives of the courses are to give the students a deeper awareness of the organic, emotional, cultural and other dynamics involved in the behavior and learning problems of handicapped children. Remedial skills and procedures are also stressed.
All students who receive a degree in the field of Special Education must complete the following requirements:

1. A minimum of 30 hours of graduate level work of which 15 must be in Special Education.
2. Three of four core courses in Education required of student who complete degrees in education or their equivalent if approved by the student's adviser.
3. Six hours of work in courses offered by the departments outside the School of Education.

**CURRICULA PROVIDED BY THE DEPARTMENT OF TEACHER EDUCATION AND COOPERATING DEPARTMENTS**

Graduate programs are offered in fifteen curricula intended to prepare teachers for superior classroom performance and a deeper understanding of their roles as teachers in the American system of education.

**Audiovisual Media**

*Adviser:* Daniel Moore

The Master's Degree Program in Audiovisual Media is designed to provide teachers and supervisory personnel with competencies in the audiovisual field.

Requirements for the degree are:

1. Thirty hours of graduate credit in professional education, audiovisual and cognate fields.
2. Nine hours of professional education courses including Introduction to Research, Social, Philosophical and Psychological Foundations in Education and in the area of Curriculum.
3. Fifteen hours in Audiovisual Media including courses in Production, Selection, Administration and Research in Audiovisual Media.
4. A paper of significance will be required in either Ed. 648, Instructional Media Seminar, or, in 710, Independent Research.
5. The remaining six hours will be selected from related fields.

**Teaching at the Junior College Level**

*Adviser:* Cameron Lambe

The requirements for this curriculum including a minimum of thirty hours of graduate level work courses in professional education and the student's major and minor fields distributed as follows:

1. Seven hours made up of the following professional courses: Education 601, Introduction to Research, 650, Growth and Development in Later Adolescence, and 690, The Community College.
2. A minimum of sixteen hours in the student's major. It is assumed that the student will also have completed an undergraduate major in this field.
3. A maximum of seven hours may be elected from the student's minor area or cognate courses related to the major field.

Curricula in Teaching

The following teaching curricula all have the same general requirements for completion of the thirty graduate hours for the Master of Arts degree. These requirements include:

1. Nine hours selected from the four three-hour courses in the Education core:
   a) 601 Introduction to Educational Research
   b) 602 School Curriculum
   c) 603 Social and Philosophical Foundations of Education
   d) 604 Psychological Foundations of Education

2. Fifteen hours in the major or related academic fields.

3. Six hours of electives, some or all of which may be professional education courses.

The Curricula in Teaching, the graduate advisers and the prerequisites, for admission, in addition to the fifteen hours of undergraduate work in professional education or the equivalent, are listed below:

Teaching in the Elementary School
Advisers: David Frazen, Louis Govatos, Sara Swickard

Teaching in the Junior High School
Adviser: Clara Chiara

Teaching of Art
Adviser: Harry Hefner
Prerequisite: Twenty-five hours in art or the equivalent

Teaching of Business Education
Advisers: E. L. Marietta, Max O. McKitrick
Prerequisite: Minor in business or the equivalent

Teaching of Distributive Education
Adviser: Adrian Trimpe
Prerequisite: Must qualify for a vocational certificate as a coordinator

Teaching of Home Economics
Adviser: Eunice E. Herald
Prerequisite: Minor in Home Economics

Teaching of Industrial Education
Adviser: Charles G. Risher
Prerequisite: Minor in Industrial Education

Teaching of English
Adviser: Ralph Miller
Prerequisite: Minor in English

27
Teaching of Music
Adviser: Charles Osborne
Prerequisite: Major in Music

Teaching of Physical Education
Adviser: George G. Dales
Prerequisite: Minor in Physical Education

Teaching of Science
Adviser: Edwin B. Steen
Prerequisite: Minor in one department of the science division

Teaching of Mathematics
Adviser: Robert C. Seber
Prerequisite: Minor in mathematics

Teaching of Social Sciences
Adviser: William V. Weber
Prerequisite: Twenty-five hours in combined fields of economics, history, philosophy, political science and sociology

Teaching of Speech Correction
Adviser: Robert J. Erickson
Prerequisite: Nine hours of undergraduate speech correction before or in conjunction with graduate work and consent of adviser

Teaching of General Speech
Adviser: Zack York
Prerequisite: Minor in speech with suitable cognates.

English

Ralph Miller, Adviser

The master's degree program in English is designed to improve the student's proficiency in criticism and writing and to increase his understanding of literature and language. The student's program of study must be planned with and have the approval of the adviser. Requirements for the degree are these:

1. An acceptable undergraduate major in English or some other preparation accepted as the equivalent by the English Department.
2. Completion of twenty to twenty-four semester hours of graduate work in English, including 668 Literary Criticism, 570 Introduction to Linguistics, 660 Methods of Research in English and 661 Seminar in English.
3. Completion of six to ten semester hours of graduate work in appropriate cognate fields.
4. (a) Publication of an essay before the term in which the student expects to receive his degree in a form approved by the adviser.
   (b) Explication of a text presented orally before a panel of professors at some time during the last term of the student's residence.
The student should consult his adviser after completing 15 hours of work to plan for fulfilling these two requirements.

**Geography**

In order to earn a master's degree in Geography, a student must satisfy the following departmental requirements:

1. An undergraduate major in Geography or its equivalent.
2. Thirty hours of graduate credit in Geography and cognate fields with at least twenty hours in Geography.
3. An acceptable thesis and/or field assignment, or two approved research papers.
4. Demonstrated competence in:
   a. Field procedures
   b. Documentary analysis
   c. Cartographic and statistical presentation of data
   d. General physical and cultural patterns
   e. Philosophy of Geography
5. Completion of required courses: Geography 661 and 664.
6. Completion of a minimum of 5 hours in at least two of the four following areas of concentration: Regional; Economic and Urban; Cultural, Historical and Political; or Physical Geography.
7. An oral examination.

**History**

In order to earn the Master of Arts degree in history, a student must satisfy the following requirements:

1. For admission to the department for graduate study, either (a) completion of thirty hours of undergraduate credit in the social sciences and closely related subjects, including at least fifteen hours of history, or (b) possession of other preparation accepted as the equivalent by the departmental committee.
2. Complete History 690 (Historical Method) and History 692 (Studies in Historical Literature).
3. Choose two of the following fields, one of which is designated as the area of concentration, and pass written and oral comprehensive examinations in each. (1) Ancient (2) Medieval (3) Europe, 1500-1815 (4) Europe, 1815 to the present (5) United States to 1877 (6) United States since 1877 (7) Latin America (8) Far East (9) Russia and Eastern Europe.
4. Choose one of the three options listed below:
   (1) Complete two seminars, one of which must be in the designated area of concentration.
(2) Complete one seminar and write a Master's Essay (4 hrs.) in the designated area of concentration.

(3) Complete one seminar and write a thesis (6 hrs.) in the designated area of concentration.

5. Earn 30 hours of graduate credit, of which at least 20 hours must be in history, and the remainder in a department approved by the graduate adviser.

6. The Department recommends that students planning to do graduate work in history acquire a reading knowledge of an appropriate foreign language.

Home Economics

Eunice E. Herald, Adviser

The degree of Master of Arts in Home Economics is designed for the person with a Bachelor of Science or Arts in Home Economics. The Master's degree is planned to provide a general program of studies in the whole area of Home Economics for the person who may have specialized in Foods and Nutrition, Textiles and Clothing, Family Relationships or Home Economics Education at the undergraduate level. A general program of studies in three areas of Home Economics is included: a) Foods and Nutrition, b) Textiles and Clothing, and c) Family Relationships. The student may or may not have specialized in one of these areas but will have had the foundation courses to pursue them at the graduate level and could broaden the scope and depth of understanding in one of the three areas. The degree may be used as a foundation for continued graduate work leading to a Doctor's degree at another institution.

In addition to the Graduate School admission requirements, the student must:

1. Choose 8-10 hours in a minimum of 3 courses in the basic courses selected from

   500 Advanced Textiles .......................... 2 s.h.
   510 Advanced Nutrition .......................... 3 s.h.
   518 Advanced Foods and Experimental Foods ...... 4 s.h.
   600 Clothing Techniques .......................... 2 s.h.
   650 Advanced Home Management .................. 2 s.h.
   652 Family Life Education ........................ 2 s.h.

2. Complete a total of twenty (20) hours of work in Home Economics at the Graduate level including a minimum of 2 hours of Seminar credit;

3. Complete a minimum of ten (10) hours of work at the Graduate level in allied areas e.g. Sociology, Psychology, Economics, Biology, Chemistry, Education, Art.

This program is planned for the following students:

1. Dietitians working toward a Master’s degree or who have been out of the field and membership in the American Dietetics Associa-
tion has been dropped and now are required to take a minimum of five hours of academic work to be reinstated;
2. The Home Economist in Business who may need extra work in specific areas;
3. The Home Economist in Extension;
4. The School Lunch Manager;
5. The Teacher of Home Economics who may have been employed and desires to bring herself up-to-date in Home Economics subject matter for College or Junior College teaching.

Language

Wayne Wonderley, Chairman of Advisers

The Master of Arts degree in Language (French, German, or Spanish) stresses improving the candidate's competence in the subject language and literature. Requirements are:
1. Undergraduate major or 30 hours or equivalent in Foreign Language.
2. Completion of thirty semester hours of graduate study of which twenty to twenty-four are in the Department of Language. Six hours toward the requirement in Language study may be satisfied at the option of the Department by the presentation of an acceptable thesis. Furthermore, a maximum of ten hours of graduate study may be applied in appropriate cognate fields. Selection of cognate courses is made by the adviser after determination of the candidate's specific needs and interests.
3. Oral examination over the candidate's area of concentration.

Librarianship

Jean E. Lowrie, Adviser

The Department of Librarianship is accredited by the American Library Association and is a member of the Association of American Library Schools. The purpose of the Librarianship curriculum is to prepare qualified college graduates for the library profession. The Librarianship curriculum involves a basic general program of studies at the graduate level in the five major areas of library science: (1) history, philosophy and background of libraries in society; (2) technical processes; (3) library resources; (4) library clientele; (5) library organization and administration. The program prepares candidates for the differentiated services in colleges or university, school, public and special libraries. In addition to the general admission requirements, the student must:
1. Evidence ability, on the basis of his scholastic record and personal characteristics, to do graduate work in library science.
2. Present a reading knowledge of at least one modern foreign language. This requirement may be met either by completing one academic year of study at the college level or by passing a proficiency examination.
In order to earn the degree of Master of Science in Librarianship, a student must satisfy the following departmental requirements:

1. Successfully complete thirty to thirty-four hours of approved graduate courses with a minimum of twenty semester hours in library science at the graduate level. The program is developed in conference with his graduate adviser.

Candidates without previous training in library science will need to take the Required Courses as specified in the following list plus Elective Courses in the fields of their special interest to total thirty-four semester hours.

2. Submit a satisfactory research paper required as partial fulfillment of a course requirement or, with the consent of the graduate adviser, complete a thesis for six semester hours of credit.

3. One semester of resident study or the equivalent in summer sessions.

Specialization is available in various types of library service, e.g. school libraries, and special departments in public libraries such as those serving children, the adult reader, and the young adult. Programs are also arranged for candidates who wish to specialize in college, university or special library service such as industrial, art or music, etc.

Candidates preparing for school library service must meet the teacher certification requirements in the state in which they wish to be employed.

Colloquium. Regular series of lectures, discussions, field trips and film demonstrations by eminent librarians, members of the staff and leaders in fields related to library interests. Required both semesters for full-time graduate students. Part-time graduate students are expected to arrange for attendance at least one semester. (No credit)

NOTE: Students who have an undergraduate minor in Librarianship may elect courses from other departments for a total of six to eight semester hours. The total number of hours required for these students is thirty instead of the thirty-four required for those with no previous library science courses.

Required Courses: Lib. 510, 512, 530 or 531, 600 and 629 or Ed. 601.

Course descriptions and courses to be chosen as electives in Library Science will be found under the listings for the Department of Librarianship.

At the time of application for candidacy, the student must have completed at least two of the following courses: Lib. 510, 512 and 530.

Graduate Program for the Instructional Materials Center Specialist

Because of the increasing demand for school personnel with training in the administration of school libraries and also in the administration of audio-visual materials and equipment, the Department of Librarianship now offers a graduate curriculum for preparation of the Instructional Materials Center Specialist.
Prerequisite: Teaching certificate and one year of experience in classroom or in school library and a fifth year degree in library science.

Mathematics

Joseph C. McCully, Adviser

The degree of Master of Arts in Mathematics extends the student's knowledge in the areas of algebra, analysis, applications, geometry, and statistics. The program permits specialization in preparing for advanced study and provides additional training for teachers of mathematics and students seeking employment in industry.

In addition to the general admission requirements, the student in the field of Mathematics must satisfy the following:

1. Complete with satisfactory grades an undergraduate major in Mathematics. If the student's undergraduate program in Mathematics does not meet approved standards, he may be required to elect additional courses or otherwise satisfy the requirements of the department.

2. Complete a minimum of 30 hours of approved course work in Mathematics to include 630 Abstract Algebra I, 670 Real Analysis I and 6 hours of credit in a related area.

3. Prepare an acceptable thesis if required by his graduate adviser and committee.

4. Present credits in at least two mathematics seminars.

5. Pass a final oral examination in his field.

Medieval Studies

John R. Sommerfeldt, Adviser

The degree of Master of Arts in Medieval Studies is designed to provide a broad background in medieval history, languages, literatures, philosophy and theology. The program is available to students with undergraduate majors in history, art, philosophy, music, English, German, French, Spanish, Italian, or Latin, or other preparation accepted as the equivalent by the Medieval Institute.

The requirements for the degree are as follows:

1. Before admission to candidacy, the student is expected to present (a) an elementary reading knowledge of Latin and either German or French, (b) a survey course in medieval history, and (c) course work in philosophy or religion.

2. The course work includes a minimum of (a) three courses in medieval history, (b) two courses in medieval philosophy and theology, (c) two courses of medieval literature, and (d) a course in research methods. Courses taken as an undergraduate can be counted toward these area requirements. The student must complete a minimum of 30 semester hours of graduate work.

3. The preparation of an acceptable thesis.
Master of Music Degree

Charles Osborne, Adviser

The Master of Music degree is designed for professional advancement as well as for cultural attainment. This program is an extension of the Bachelor of Music curriculum and is planned to enhance the teaching and performing ability of the student. The degree of Master of Music may be obtained in any one of three areas of concentration: 1) Applied Music, 2) Theory-Composition, or 3) Music Education; i.e., the student may obtain a Master of Music degree in Applied Music, etc.

The student must successfully complete 14 semester hours in the major area in which he wishes to concentrate. In addition to a major area, a student will choose two minors from among 1) Music Education, 2) Music Literature, 3) Theory, and 4) Applied Music. The minors will consist of six semester hours each. To complete the necessary 30 semester hours of graduate credit the student will select, in consultation with his adviser, four semester hours outside of the field of music. Every graduate student is required to participate in some large ensemble while in residence.

A comprehensive examination will be administered to the student upon entering the curriculum. The results of this test will be used to give direction to the student's course of study. The areas in which the student will be examined are: 1) music literature and history, 2) theory, 3) applied music, 4) piano proficiency, and 5) conducting. The student's adviser will work closely with him in regard to planning and implementing the curriculum in order that the full value and depth of the program will be realized. The right is reserved to withhold the recommendation of a candidate for a degree if the student has not demonstrated sufficient maturation and musicianship. The student must have successfully completed the following levels or their equivalents in order to receive graduate credit in the Applied Music concentration of the Master of Music degree: Piano, H51; Voice, H95; Strings, Z31; Woodwinds, Z69; Brass, Z49; Organ, H74. The students minoring in Applied Music in the Music Education and Theory-Composition curricula must first achieve the following levels of proficiencies in order to receive graduate credit: Piano, H45; Voice, H83; Strings, Z24; Woodwinds, Z66; Brass, Z46; Organ, H74; Percussion, Z86.

The Master of Music degree curriculum is open to students with the Bachelor of Music degree or its equivalent.

Occupational Therapy

Dean R. Tyndall, Adviser

The Master's degree program in Occupational Therapy is designed to prepare students for administrative and supervisory positions in the field. In addition to meeting the general admission requirements, the candidate must have completed a Bachelor's degree in Occupational Therapy or in a related field with a certificate in Occupational Therapy. A year of experience between undergraduate and graduate studies is recommended.
In order to qualify for a Master's degree the student must successfully complete thirty semester hours of approved graduate courses according to the following pattern:

1. Ten hours selected from basic courses related to Occupational Therapy, i.e., Biology, Education, Psychology and Sociology. The course, Education 601, Introduction to Research in Education, is requirement in this group.

2. Fourteen hours from the following courses in Occupational Therapy: 630 Professional Literature, 632 Supervision of Occupational Therapy, 633 Administration of Occupational Therapy, 650 Clinical Training and Scheduling, and 700 Thesis or 712 Professional Field Experience. (Experience in Organization and Administration of Occupational Therapy offered in cooperation with the Occupational Therapy Department of the Veterans Administration Hospital, Hines, Illinois, and offered during the Spring and Summer sessions only.)

3. The remaining six hours may be selected with the help of the graduate adviser from the following units: Business, Psychology and Occupational Therapy.

Physics
George Bradley, Adviser

The program for the Master of Arts in Physics consists of a minimum of thirty semester hours of graduate credit which must include:

1. The following courses which make up twelve hours of physics open only to graduate students, namely: 622 Quantum Mechanics, 624 Statistical Mechanics, 630 Classical Mechanics, and 662 Electricity and Magnetism.

2. Twelve additional hours from the physics, mathematics, or other departments chosen with the consent of the physics graduate adviser. Only courses numbered 500 or above carry graduate credit.

3. Satisfactory completion of a Master's thesis (6 credit hours) based on either an experimental or theoretical problem, under the guidance of a committee of the graduate faculty in physics.

The Physics Department offers three different seminar and colloquium programs which involve graduate students. 1). The regular Physics Seminar is a series of talks given bi-weekly, usually by visitors from other institutions, on topics of general interest and at a level requiring little physics background. 2). The Graduate Colloquium is a weekly program for graduate students and physics staff members, presented usually by members of the WMU physics staff, or visitors from other universities, on topics related to their research specialties. 3). An informal graduate-faculty seminar is conducted weekly, usually during the lunch hour, at which graduate students and staff members discuss their professional interests.
Political Science

In addition to the admission requirements of the Graduate School and the Department, a student must satisfy the following to earn the Master of Arts degree in Political Science:

1. Complete a minimum of twenty-four hours of graduate work in Political Science among the three areas of study listed below with at least four hours of credit in each:
   a. American Government and Administration.
   b. International Relations and Comparative Government.
   c. Political Theory and Methodology.
2. A thesis for six hours of credit will ordinarily be required. This requirement may be waived on recommendation of the Departmental adviser, in which case a research paper will be required.
3. Complete six hours in appropriate cognate areas.
4. Before being recommended for the Degree of Master of Arts in Political Science, the student will be required to pass an oral examination. The examination will cover the Thesis or research paper, the subject matter of the student’s area of emphasis, including bibliography, and the adequacy of his preparation in the general field of Political Science.

Psychology

In order to qualify for a Master’s degree in Psychology, a student must meet all the regular admission standards as well as those of the Psychology Department. The Graduate Record Aptitude exam scores should be submitted by all applicants for admission to the Psychology Department graduate programs. In general, the requirements for the degree are as follows:

1. Completion of a major or broad minor in Psychology at the undergraduate level with satisfactory grades.
2. Completion of at least eighteen hours of graduate credit in Psychology with six hours in an allied field or fields. The distribution of credit will be determined in conference with the adviser and according to the area of psychology in which the student wishes to specialize.
3. A thesis for six hours of credit will ordinarily be required. This requirement may be waived with the approval of the student’s adviser.
4. The areas in which a student may specialize are these:
   a. General Experimental—a preparation for doctoral training with emphasis upon research methods and theory. The general experimental core consists of 18 or more semester credit hours. Required courses are Psychology 614, 617, 618, and 634. Elective courses are Psychology 511, 512, 513, 518, 595, 613, 635, and 696.
b. Industrial—For those wishing to specialize in Industrial Psychology, the following guidance is provided:

(1) Undergraduate Level—It is expected that the following courses will have been completed as part of a major or broad minor in Psychology: Psychology 330, and six hours of experimental psychology. In addition, it is to the student’s benefit to have taken as many of the following courses as possible: Psychology 380, 540, 516, 542, and 574.

(2) Graduate Level—The following courses are required: Psychology 540, 618, 634 or 635, 644, and 645. The remaining course credits may be selected from among the following: Psychology 516, 574, and 542. A thesis is required of all graduate students specializing in the industrial area.

(3) Allied Areas—It is suggested that in order to complete a minimum of 6 credit hours in an allied area or areas, courses be selected from, for example, these fields: a) Business, b) Economics, or c) Sociology. Other relevant areas may be chosen where appropriate in conference with the adviser.

c. Clinical-Counseling Program—This is a 60-hour program designed to meet the needs of two kinds of students: those interested in doing clinical-counseling work at master's degree level of proficiency, and those interested in continuing on to a doctorate in the clinical-counseling area. Hence this is a comprehensive program covering course work in the general area of psychology plus the special area of clinical-counseling theory, research and skills.

(1) Required courses in General Psychology area: Psychology 634 and/or 635, and 700.

(2) Required courses in Clinical-Counseling area: Psychology 623, 624, 660, 661, 662, 663, 684, 685, 712, 682 and/or 683.

(3) Selected courses in general psychology area (9 hours) from: 511, 512, 513, 518, 574, 595, 613, 614, 617, 618 and/or 696.

Sociology and Anthropology

Jerome G. Manis, Adviser

The master's degree program in Sociology is designed to (1) give students a mature understanding of the significant factors and processes of contemporary society (2) advance the preparation of those planning to teach in the social-science field, (3) lay the foundation for more advanced graduate work in Sociology, and (4) provide professional training for a variety of occupational opportunities in government, industry, research organizations, welfare agencies and correctional systems.

In order to earn the Master of Arts degree in Sociology, a student must satisfy the following departmental requirements:
1. Have completed at least twenty-four hours of undergraduate work in the Social Sciences with a minimum of twelve semester hours in Sociology, or in equivalent course work approved by the departmental graduate adviser.

2. Complete at least thirty hours of graduate course credits, selected in consultation with the graduate adviser. Twenty to twenty-four hours must be in Sociology courses, with a "B" average. At least six hours must be in approved cognate areas.

3. Sociology 504 and 582, or their equivalents, are required. Sociology 580 is strongly recommended. Entering students who have not completed any of these courses as undergraduates may be required to complete additional hours beyond the thirty hour minimum.

4. Complete an original thesis or essay, using approved methods for investigating a sociological topic. The thesis is required for students planning, and considered qualified, for doctoral studies. The thesis provides six hours of course credit, the essay two hours of credit toward the sociology course credit requirements.

5. Before receiving the master's degree, pass an oral examination on the thesis or the essay. The examination will deal with the relationship of the thesis or essay to the field of Sociology.

Center for Sociological Research

A number of departmental research and teaching assistantships are available to qualified students. Training opportunities and part-time employment are also available through the facilities of the Center for Sociological Research. The Center, first established in 1956, has conducted studies of mental illness, marital roles, race relations, group dynamics, deviant behavior and numerous other topics. Graduate students frequently participate in these studies. Additional information and application forms may be obtained from the departmental chairman or the graduate adviser.

Speech Pathology and Audiology  Robert Erickson, Adviser

The master's degree program in Speech Pathology and Audiology is designed to provide academic and practicum experiences basic to the development of increased clinical and administrative competence in the profession of speech and hearing therapy. The master's program usually will be planned with emphasis in one of the following areas: (a) public school speech and hearing therapy, (b) clinical speech and hearing therapy, or (c) audiology.

In addition to meeting the regular admission standards of the Graduate School, students wishing to qualify for the master's degree in Speech Pathology and Audiology must fulfill the following requirements:

1. (a) Completion of an undergraduate major or minor in speech correction, or
(b) Completion of an undergraduate major or minor in Psychology, Sociology, Education, or other curriculum accepted by the department, plus 12 semester hours of undergraduate courses in speech correction. Undergraduate deficiencies may be removed during the time that graduate courses are being completed.

2. Accumulation, during the final two years of undergraduate work, of a point-hour ratio of at least a B.

3. Successful completion of a personal screening interview by the director of the graduate program in Speech Pathology and Audiology.

4. Completion of the following core of required courses in Speech Pathology and Audiology: 550, 552, 555, 558, 653, 654, 658, 659.

5. Completion of a least four semester hours of elective courses in Speech Pathology and Audiology, to be selected from the following: 556, 650, 652, 655.

6. Students who demonstrate research aptitudes and interest are encouraged to present a thesis. Students who anticipate continued graduate work toward a doctoral degree are required to present a thesis. Six semester hours of credit are granted for completion of a thesis.

7. Students who desire to qualify for clinical certification by the American Speech and Hearing Association must complete at least 275 hours of supervised clinical practicum experience as well as the prerequisite academic course work specified by ASHA.

Technology

George E. Kohrman, Chairman of Advisers

The Master of Science program in Technology is designed to (1) prepare teaching personnel for engineering technology positions in community colleges, (2) provide an opportunity for industrial employees to upgrade themselves in advanced technical skills and information, and (3) provide advanced technical course work for those who are preparing to teach in a specialized shop area in the public schools.

The Master's Degree in Technology is sponsored by the School of Applied Arts and Sciences. A student must satisfy the following requirements to earn the degree:

1. Possess a baccalaureate degree with a major in a technical or related field.

2. Show evidence of a mathematics and science background consisting of a minimum of two semesters of college mathematics (eight hours) and a minimum of one year of college physics, and/or chemistry (eight hours).

3. Complete the basic course, Introduction to Technology.

4. Complete, with the approval of his adviser, twelve to fifteen hours of study in a major field of study representing his specialty in either electrical, industrial, or mechanical technology.

5. Complete, with the approval of his adviser, five to eight hours of
study in a related technical area from either electrical, industrial, or mechanical technology.

6. Complete seven hours of cognate areas from the following: chemistry, economics, education, industrial management, mathematics, physics, psychology, sociology, vocational education, or business.

7. Show evidence of practical work experience in his major field of pursuit. Those who do not have this experience would be expected to spend a minimum of one session (two to three hours credit) of supervised internship in industry involving his field of specialty.

SPECIALIST’S DEGREE PROGRAMS

Specialist in Education William P. Viall, Chairman of Advisers

Sixth-year programs leading to the degree Specialist in Education are offered in the nine areas of General School Administration, Elementary School Administration, Secondary School Administration, School Personnel Administration, School Business Management, Director of Curriculum, Guidance and Personnel Services, Special Education, and School Psychological Examiner. The degree is awarded after satisfactory completion of a minimum of 60 semester hours of graduate work beyond the Bachelor’s degree.

The Specialist in Education Degree is designed to produce educational leaders who are competent persons, broadly and deeply educated, and well-versed in the professional qualifications required of their respective educational tasks. With this in mind and considering the individual plans of each applicant, a flexible curriculum has been designed to meet the personal needs of the students. It is anticipated that most candidates for the Specialist in Education will have already earned Master’s degrees. No student is accepted until he has completed 20 hours of graduate level work. The program, however, is conceived as a well-articulated fifth- and sixth-year program, covering a minimum of two years, or 60 hours, of graduate work. For those students entering with only 20 hours, the Master’s degree may be awarded on completion of a minimum of ten additional hours if all other institutional requirements for that degree are met. The degree of Specialist in Education is awarded upon successful completion of the entire program.

The applicant for admission to the Specialist in Education Degree program must:

1. Be admitted to the School of Graduate Studies; have earned a Master’s Degree or completed a minimum of 20 semester hours at a recognized graduate school with an academic average of at least 3.25 (A=4, B=3) in all graduate work; (Applicants may achieve a 3.25 average by submitting more than 30 semester hours; however, the student must complete a minimum of 30 additional hours with an overall grade point of 3.25 for all graduate work).

2. Have achieved an acceptable score on the appropriate tests of a standardized examination.
3. Have demonstrated competence in English usage.
4. Secure a favorable rating from a three-member interviewing team representing the School of Education prior to the completion of the first term of registration at the University.
5. Present evidence of potential leadership ability.

After admission to the program, the applicant must complete the requirements of his curriculum with an overall graduate average of 3.25 or better.

The applicant must have completed at least one year of successful teaching experience prior to the completion of the program. In certain non-administrative curricula equivalent experience may be accepted.

Application for Candidacy for the Specialist in Education degree must be initiated at the end of the semester when 40 graduate hours are completed. See Calendar of Events for application deadlines.

The minimum acceptable residence requirement for the Specialist in Education degree is a planned full-time campus load for at least one semester or two half-semesters, including courses, seminars and a supervised internship or field project.

Specialist in Education Curricula

Applicants for Candidacy in each of these curricula will be assigned a committee of three faculty members who will work with the student in planning his program, supervising his internship and field project, and recommending the degree. Each program will consist of at least two years' work beyond the Bachelor's degree, (defined as a minimum of 60 semester hours). With the exception of the curriculum for School Psychological Examiner, these programs will include the following:

1. Twenty hours in core and related education courses.
2. At least twenty hours in the major area, to include four to six hours in a field project or internship.
3. Twenty hours in cognate fields such as Anthropology, Business, Economics, History, Librarianship, Political Science, Psychology, Sociology and Speech.

Titles of Specialists curricula and graduate advisers for them include:

**Director of Curricula**

*Adviser:* Dorothy McCuskey

**Elementary School Administration**

*Advisers:* James Davenport, Paul Misner

**General School Administration**

*Advisers:* Harold W. Boles, Roland Strolle

**Guidance and Personnel Services**

*Advisers:* Kenneth B. Engle, Robert Betz

**School Business Management**

*Adviser:* Harold W. Boles
School Personnel Administration  
Adviser: William P. Viall

Secondary School Administration  
Adviser: Roy C. Bryan

Special Education  
Advisers: Kristen D. Juul, Joseph J. Eisenbach

School Psychological Examiner  
Adviser: Stanley Kuffel

This program provides for the training of persons preparing for the position of School Diagnostian or School Psychological Examiner, as well as basic pre-doctoral study in School Psychology. Successful completion of this program is a requirement for certification as a School Psychological Examiner in the State of Michigan.

The program is designed to prepare the student in the use of the principles and techniques of psychology in the school setting. The training includes work in testing, interviewing, and psychological counseling. The student will be expected to acquire a knowledge of the deviant and exceptional child and of the basic techniques used in psychological research.

Admission requirements include the following:

1. Nine to fifteen hours of undergraduate psychology courses including Elementary Statistics and Experimental Psychology or their equivalents. Additional work to remedy deficiencies may be taken prior to application for candidacy.

2. Successful teaching experience or the evidence of potential for success in the field of education.

3. Attainment of a satisfactory score on the Graduate Record Examination and satisfactory completion of any examination that may be deemed desirable by the graduate committee.

A student may be admitted to the program either on completion of the bachelor's or master's degree. A student will be expected to apply for admission to candidacy upon the completion of twenty semester hours beyond the bachelor's degree or upon the completion of ten semester hours beyond the master's degree. It will be necessary also for the student to successfully complete a qualifying examination before admission to candidacy. This examination will be administered by the graduate committee.

In order to qualify for the Specialist degree in this field, the student must elect courses from the following groups:

I. 12 to 17 hours from the General Psychology Core including Psychology 512, 516, 614, 510 and 696.

II. 18 to 22 hours from the Clinical and School Psychology courses including Psychology 623, 624, 560, 661, 680, 681, 682 and 683.
III. 15 to 16 hours from courses outside the Psychology Department chosen in consultation with the student's adviser.

IV. 12 to 18 hours of internship to include 500 or more clock hours of supervised practice.

**Educational Specialist in Subject Matter Areas**

Programs leading toward an Educational Specialist degree in Subject Matter Areas are described in Section III of this Bulletin.
SECTION III

Educational Specialist and Doctoral Programs

EDUCATIONAL SPECIALIST PROGRAMS

In addition to the Specialist in Education programs the School of Graduate Studies will initiate five Educational Specialist programs in subject matter areas in the fall of 1966. All these programs, with the exception of the Educational Specialist in the Administration of the Instructional Materials Center, have been planned to prepare community college teachers. Each of the four programs designed to prepare community college teachers include sixty hours of graduate level work. Students entering with a Master's degree may receive up to thirty hours of credit for work done as a part of their Master's degree. Such students will, however, have to meet the requirements as stated in the individual programs. Students entering the Educational Specialist in Administration of the Instructional Materials Center must have a Master's degree in Librarianship from a library school accredited by the American Library Association. This program will include only thirty hours of work beyond that degree. The basic plan of work for each of the community college programs will involve forty hours of course work in the units involved, ten hours of professional preparation including a seminar in teaching and the remaining hours in some cognate area. A description of each of the programs follows:

Educational Specialist in Business

The Educational Specialist in Business program is designed to prepare community college teachers of business subjects. Each student must select a field of business for concentration but will be expected to complete work in some other area of work offered by the School of Business as well as to take some work in economics or one of the behavioral sciences. The exact division of course work will be determined by the student in consultation with his adviser.

The specific requirements for the degree include:

A. For Admission:

1. With Bachelor's degree—2.6 average for the last two years of undergraduate study and acceptance by the School of Business
2. With Master's degree—3.25 average for all graduate work completed and acceptance by the School of Business

In either case the student must have completed the Verbal and Quantitative test of the Graduate Record Examination and the Admissions Test for Graduate Study in Business and the admission's test in English with an acceptable score and satisfy the requirements of an oral examination conducted by members of the Schools of Business, Education and Graduate Studies.

B. For Graduation:

1. Admission to Candidacy with a 3.25 average for all graduate work completed at the twentieth hour for holders of Bachelor's degrees and the fortieth hour for holders of Master's degrees.

2. Completion of sixty hours of graduate work with a 3.25 average divided as follows:
   a) Forty hours of subject matter course work in the School of Business including a Specialist Project or Thesis
   b) Professional training including courses in:
      1) The Community College
      2) Characteristics of the College Student
      3) Seminar in College Teaching
      4) Research
   c) The remaining hours in a cognate area

3. Successful completion of an examination conducted jointly by the School of Education and the School of Business

4. Students must meet the minimum residence requirements for the Educational Specialist Degree.

**Educational Specialist in English**

The Educational Specialist in English program is designed primarily to prepare community college teachers of English. It is intended to give students opportunities for study and training in:

English and American literary history
Linguistics
Literary research

The student will concentrate a portion of his work in one field e.g., in a period of English or American literary history, a major author, a genre, etc. He will also write an historical or critical essay and meet the specific requirements listed below:

A. For Admission:

1. With a Bachelor's degree—A major in English with an overall 2.6 average for the last two years of undergraduate
work, a 3.0 average in undergraduate English courses, and acceptance by the Department of English.

With a Master's degree—A 3.25 average for all graduate work completed, and acceptance by the Department of English.

2. Satisfactory completion of the Verbal and Quantitative tests of the Graduate Record Examination and an admission test in English, and recommendations of the interviewing committee composed of representatives from the Department of English, the School of Education, and the School of Graduate Studies.

B. For Graduation: (Including work accepted from the Master's Degree if one has been completed)

1. Admission to Candidacy with a 3.25 average for all graduate work completed at approximately the twentieth hour for holders of the Bachelor's degree and the fortieth hour for holders of the Master's degree.

2. Completion of sixty hours of graduate work with a 3.25 average divided as follows:
   a. A minimum of forty hours in the Department of English
   b. An acceptable critical or historical essay
   c. Professional training including courses in the Community College, Characteristics of the College Student, a Seminar in College Teaching, and Methods of Research in English
   d. The remaining hours in cognate areas

3. Successful performance in an oral examination in literary history by the Department of English.

4. Satisfactory completion of an examination conducted jointly by the School of Education and the Department of English.

5. Satisfaction of the minimum residence requirement: two consecutive full-time semesters if the candidate enters with a Bachelor's degree, or one full-time semester or two consecutive full-time sessions if he enters with a Master's degree.

Educational Specialist in History

The Educational Specialist in History program is designed to prepare community college teachers of history and to provide an enrichment of the preparation of teachers of history in the secondary schools.

The specific requirements for the degree include:

A. For Admission:
   1. With a Bachelor's degree—Completion of thirty hours of undergraduate credit in the social sciences or closely related subjects, including at least fifteen hours of history or equivalent
preparation. A 2.6 average for all work completed within the last two years of undergraduate study. Acceptance by the History Department

2. With a Master's degree—A 3.25 average for all graduate work completed and acceptance by the History Department

In either case the student must have completed the Verbal and Quantitative tests of the Graduate Record Examination and an admission test in English with an acceptable score and satisfy the requirements of an oral examination conducted by members of the Department of History, the Schools of Education and Graduate Studies.

B. For Graduation: (Includes work accepted from the Master's degree if one has been completed)

1. Admission to Candidacy with a 3.25 average for all graduate work completed at approximately the twentieth hour for holders of Bachelor's degrees and the fortieth hour for holders of Master's degrees

2. Completion of sixty hours of graduate work with a 3.25 average distributed as follows:
   a) Forty hours of subject matter course work in the Department of History including an historical essay or thesis
   b) Professional training including courses in The Community College, Characteristics of the College Student, and Seminar in College Teaching. Students not planning on a career in college teaching may substitute other courses in education approved by their advisers
   c) The remaining hours in cognate areas

3. Students must meet the minimum residence requirements for the Educational Specialist Degree.

4. Each student is expected to select three fields of concentration in history and one field of concentration in a related department approved by the graduate adviser. The fields in history are to be selected from the following: Ancient, Medieval, Europe 1500-1815, Europe 1815 to present, United States to 1877, United States since 1877, Latin America, Far East and Russo-Soviet. One of the three fields should be designated as a major field of concentration.

5. Although no specific number of hours is required in each field of concentration, the student will be expected to pass a written and oral examination in two fields of concentration during the semester in which he completes thirty hours of graduate work and in the other two fields during the final semester or session. The student is required to complete History 692, Studies in Historical Literature, History 690, Historical Method, and the professional work required by the School of Graduate Studies.
Educational Specialist in Administration of the Instructional Materials Center

The Educational Specialist program in Administration of the Instructional Materials Center is designed to prepare librarians for administering instructional materials centers either in the individual school or on a system wide basis. The program will require at least thirty hours of graduate study beyond a Master's degree in Librarianship from an American Library Association accredited library school.

The curriculum will be planned to provide that balance of the individual student's background in the professional library areas which is necessary to equip him to serve K-12 programs through instructional material centers.

The student's program for the two years of librarianship training beyond the Bachelor's degree must include courses in educational supervision and the curriculum, management and systems analysis, educational media and communications, computers and data processing, library research methods as well as the usual training expected of a librarian.

The specific requirements for the degree include:

A. For Admission:
   1. A Master's degree in Librarianship with a 3.25 average for all graduate work completed
   2. Acceptance by the Department of Librarianship.
   3. An acceptable score on the Verbal and Quantitative tests of the Graduate Record Examination.
   4. An oral examination conducted jointly by members of the Department of Librarianship, and the Schools of Education and Graduate Studies.

B. For Graduation:
   1. Admission to Candidacy with a 3.25 average for all graduate work completed, at approximately the fortieth hour of graduate work, (including the thirty hours of Master's work.)
   2. Completion of at least thirty hours beyond the Master's degree with a 3.25 average.
   3. Successful completion of an examination conducted by the Department of Librarianship and a representative from the School of Education or the Department of Management.
   4. One year of successful school library experience.
   5. A reading proficiency of at least one modern foreign language.
   6. The completion of a Specialist Project paper.

49
7. Students are expected to complete one planned full-time semester on campus during their thirty hours of study for the degree.

Educational Specialist in Mathematics

The Educational Specialist in Mathematics program is designed to prepare community college teachers of mathematics. Students entering the program must have completed the equivalent of an undergraduate major in mathematics. In addition to satisfying the general requirements listed below, each student completing the degree will be expected to include the following in his program:

1. Six hours of credit in graduate seminars
2. The Journal Seminar in Mathematics
3. At least thirty hours of work open only to graduate students

Each student's initial program will be planned in consultation with the adviser in charge of the Specialist in Mathematics program. A committee composed of the student's thesis adviser, two other members of the Mathematics Department and one member of the School of Education will be named to guide his study, conduct the final examination and advise him on thesis preparation.

The general requirements for the degree include:

A. For admission:

1. With a Bachelor's degree—A major in Mathematics with a 2.6 average for the last two years of undergraduate study for all work taken and acceptance by the Department of Mathematics.
2. With a Master's degree—A 3.25 average for all graduate work completed and acceptance by the Department of Mathematics.

In either case the student must have completed the Verbal and Quantitative tests of the Graduate Record Examination and an admissions test in English with an acceptable score and receive an acceptable report from an interview conducted by members of the Department of Mathematics, the Schools of Education and Graduate Studies.

B. For Graduation: (Including work accepted from the Master's degree if one has been completed)

1. Admission to Candidacy with a 3.25 average for all graduate work completed, at approximately the twentieth hour for holders of Bachelor's degrees and the fortieth hour for holders of Master's degrees.
2. Completion of sixty hours of graduate work with a 3.25 average divided as follows:
   a) Forty hours of subject matter course work in the Department of Mathematics including a Specialist Project.
   b) Professional training including courses in the Community College, Characteristics of the College Student, Seminar in College Teaching, and Research.
   c) The remaining hours in cognate areas.

3. Successful completion of an examination conducted by the committee identified above.

4. Students are expected to meet the minimum residence requirements for students completing the Specialist degree.

DOCTORAL PROGRAMS

Beginning with the fall semester 1966, Western Michigan University's School of Graduate Studies will initiate doctoral programs in three areas. Two of these, Chemistry and Sociology, will lead to the Ph.D. and the third, Educational Leadership, will involve study toward a Ed.D. Each of these programs will involve approximately three years of study of which at least one complete year must be spent in full-time study on the campus. A program in Science Education is being planned.

Each student's program will be planned by a committee selected in consultations between the student and the graduate adviser of the program in which he wishes to study. All students will be expected to register for at least 90 hours of graduate level work while completing their programs. The exact distribution of that 90 hours between courses, seminars and research will depend upon the program and will vary from one student to another. Each program, however, will contain a significant amount of research and each student will be required to prepare a dissertation for which he will be given fifteen hours of graduate credit.

Students will be expected to select two appropriate research tools of which one will normally be a foreign language for those studying for the Ph.D. degree. The second research tool may include proficiency in one of the following: computer programming, statistics, some other skill approved by the Graduate Studies Council or a second foreign language. Appropriate competency in each of these research tools will be established by the Graduate Studies Council and tested by a committee named by the Council for that purpose.

Students will be allowed a period of seven years from the date of admission to complete all the requirements for the degree. Under extenuating circumstances, additional time may be allowed by the School of Graduate Studies.

All students will be expected to pass those examinations established by the units under which they study. In all cases these examinations will
include comprehensive examinations of the subject matter areas included in the student's program of study and a final oral examination.

The following specific requirements apply to admission to each of the programs:

Admission Requirements

A. Admission to the School of Graduate Studies.
   1. For students with a Bachelor's degree and not exceeding 20 hours of graduate study beyond.
      a. An overall 3.0 point-hour ratio in undergraduate work.
      b. Satisfactory completion of the English test administered by the School of Graduate Studies.
      c. A satisfactory score on the general aptitude test of the Graduate Record Examination or an examination of similar nature approved by the Graduate Studies Council.
   2. For students seeking admission to take graduate work toward the doctoral degree with at least 20 hours of graduate work completed.
      a. All of the above except a.
      b. A 3.25 point-hour ratio for all graduate work completed.

B. Admission to a Doctoral Degree Program.
   Having attained admission to the School of Graduate Studies, the Student will then be expected to meet the admission requirements established by the unit for the doctoral program itself.

Status as an Applicant

1. Students admitted with less than 20 hours of graduate study must request status as applicants after completing two full semesters of graduate work on campus or 20 semester hours of graduate work beyond those accumulated at the time of admission, whichever comes first.

2. Students admitted with more than 20 hours of graduate study must request status as an applicant after completing one full semester of graduate work on campus or 40 semester hours of graduate work completed, whichever comes first.

Criteria for being awarded status as an applicant include:

a. An overall point-hour ratio of 3.25 in all graduate work completed.

b. Commitment to a specific degree program.

c. Appointment of a five-man doctoral committee.

d. A decision by the unit that the student should be permitted to continue his study toward a doctoral degree.
Status as a Candidate

All students who are official applicants for a doctoral degree must seek candidacy no later than the end of the second calendar year or its equivalent and meet the following requirements:

1. An overall point-hour ratio of 3.25 in all graduate work completed.
2. Successful completion of the comprehensive examinations established for the program.
3. Completion of the research tool requirements.
4. Endorsement by the Doctoral Advisory Committee of the plan for the student’s dissertation.
5. Completion of all basic course requirements.
6. Completion of all approved unit requirements.

Approval for Graduation

1. Completion of a minimum of 90 hours of courses, seminars, research, and other requirements with an overall point-hour ratio of 3.25. (The dissertation will not be graded.)
2. Approval of the dissertation by three members of the Doctoral Advisory Committee selected to review the dissertation.

The specific programs are described in the following material.

Chemistry

The Ph.D. program in Chemistry at Western Michigan University is a flexible program that may be tailored to the needs of the individual. Of the total program of 90 semester hours, a minimal amount of graduate course work, 32 semester hours, is required, with the remainder of the program set up by the student and his doctoral advisory committee. Some students may take a relatively large number of courses, and others, relatively few. All, however, will be expected to participate in seminars and colloquia to assure that the attainment of knowledge and sophistication in chemistry is achieved. A thorough and substantial piece of original laboratory research will constitute the basis for the dissertation.

All students admitted to the Ph.D. Program in Chemistry must pass four qualifying examinations, one in each of the fields of general, analytical, organic and physical chemistry.

Two languages will be required of candidates for a Ph.D. in Chemistry. All chemistry students at the undergraduate level are expected to complete calculus and many students, particularly those in physical chemistry, will take more advanced mathematics courses. These may not be designated as “research tools” and acceptable as a substitute for one
language but instead will be considered cognate work. The two languages will ordinarily be selected from German, Russian and French.

During the first calendar year a student will be expected to complete the following courses or their equivalents: a) seminar, one hour; b) Chemical Literature, two hours; c) six first year courses, three hours each including Advanced Analytical Chemistry and Advanced Physical Chemistry. Two of the six courses must be from the division (analytical, biochemistry, inorganic, organic or physical chemistry) of his research and dissertation. Two of the six courses must be from one other division of chemistry; and d) electives in courses, special problems or research.

After admission to the Ph.D. program in Chemistry on completion of the program listed above, the student will prepare a plan of study in consultation with his major adviser and other members of his doctoral advisory committee. This plan of study shall include seminars and research and shall insure reasonable breadth for maturity as a Ph.D. candidate. Ordinarily this will include as a minimum a third and fourth three-hour course in the area of the research.

Educational Leadership

The School of Education offers, through the Department of School Services and with the cooperation of several other departments, a doctorate in Educational Leadership which has many unique features. This Doctor of Education degree is designed to prepare educators of personal and professional stature who are knowledgeable and competent to exercise leadership in education. A variety of projects and other educational experiences are arranged to educate qualified students in the technical, conceptual and human skills required of all educational administrators, without regard for their particular assignments. In this program, educational administration is conceived not as merely “running a school or school system,” but rather as a highly cognitive professional activity which demands an appropriate knowledge of the leadership process in school and society, and a high degree of competence in handling human relations.

The doctoral program is an integrated program of courses, seminars, internship experience and dissertation production designed to meet the developing needs and goals of each student. There are three rather distinct yet unified components to the program 1) the Educational Leadership Core, designed as an interdisciplinary study for all leaders in education; 2) the Special Interest Area, plus courses in related fields; and 3) the Internship-Research-Dissertation Phase.

Each component will occupy about one-third of the student’s program and will represent the equivalent of one calendar year of activity. It should be noted, however, that the implementation of the components may extend over part or all of the three-year span or its equivalent. These components are described below:
1. Educational Leadership Core 28-30 sh
   a. Administrative Concepts and Skills 8 sh
   b. Human Relations and Behavior 8-9 sh
   c. Social and Philosophical Foundations 7-8 sh
   d. General Research Tools and Skills 5 sh

2. Special Interest Area 30-32 sh
   a. Area of Specialization 14-16 sh
      The student is expected to select an area of specialization from one of the three general fields of educational leadership, namely:
      1) *General administration*, including "line positions" such as superintendent, assistant superintendent, secondary principal, and elementary principal.
      2) *Staff administration*, including directors or coordinators of instruction, curriculum, business affairs, and staff personnel.
      3) *Educational program administration*, including directors of primarily non-school educational programs in business, industry, trade unions, government, armed forces, and professional associations.
      Courses are selected from offerings of appropriate departments, primarily School Services, Teacher Education, and Management to fulfill the specialization requirement.
   b. Related Fields 14-16 sh
      Chosen from offerings in the departments of Economics, Management, Political Science, Psychology, Sociology and Anthropology, Speech, Teacher Education and others, in relation to development of the human, conceptual and technical skills required of educational leaders and in consonance with the professional goals of each student.

3. Internship, Research and Dissertation Phase 30 sh
   The equivalent of one calendar year of work (in virtually all cases, the year of residence) is to be spent in a coordinated program of internship, individual research, and dissertation preparation, with appropriate segments of college credit assigned in proportion to time and work spent in each aspect of the program.

**Sociology**

All students will be expected to meet the regular admission requirements to the School of Graduate Studies. In addition their applications for admission to the Ph.D. program in Sociology will be reviewed by the departmental admissions committee. Students whose undergraduate backgrounds do not include courses required as prerequisites to take graduate
work in Sociology at Western Michigan University or who have less than 15 hours of undergraduate Sociology will be required to make up deficiencies without credit.

The doctoral program in Sociology will emphasize work in Social Problems, Comparative Social Organization and Sociology of Education.

Program Sequence:

1. The departmental doctoral adviser will serve as temporary adviser to the beginning Ph.D. student. Together they will plan a schedule for core courses, prerequisites and such other courses as may be deemed suitable.

2. As soon as feasible, but no later than the time the student seeks status as an applicant, the major adviser will be selected. The major adviser will serve as chairman of the student's doctoral advisory committee.

3. All Ph.D. students must complete the requirements for a Master's degree.

4. At or before the time when the student has completed the first 30 hours beyond the Master's degree he will take the core course examination. This examination will be constructed by a departmental committee on core examinations and will cover these four areas:
   a. Theory
   b. Methodology and Statistics
   c. Social Psychology
   d. General Sociology

5. The student's major adviser in conjunction with the student, and subject to the approval of his doctoral advisory committee, will designate two areas in which the candidate will concentrate and indicate the courses to be taken in each. At least one cognate area will likewise be designated.

6. When the student has substantially completed his course work in fields of concentration and in the cognate field and has the permission of his doctoral advisory committee, he will take the examinations in the areas of concentration and the cognate area. The number of courses required of the student in areas of concentration is not fixed.

7. Students will be required to demonstrate competence in one language other than English and such other research tool examinations as may be required by University regulations.

8. A dissertation prospectus will be developed by the candidate under the supervision of the adviser for approval by his doctoral advisory committee.

9. The dissertation will be completed under the primary supervision of the major adviser with the consultation of his doctoral advisory committee.
SECTION IV

Description of Graduate Courses

Two types of courses are offered in the School of Graduate Studies: (1) Those numbered 600 and above open only to graduate students, and (2) those numbered 500 through 599 open to both upperclassmen and graduate students. In all courses open to both upperclassmen and graduates, a distinction is made between the work expected from graduate students and that from undergraduates. The work expected from graduates may be of higher quality or greater quantity or both. This applies to courses offered in extension as well as in residence. The student should consult the Schedule of Classes for hours, days of week and place of meeting for all classes.

School of

Applied Arts and Sciences

GEORGE E. KOHRMAN,
Dean

DONALD C. METZ
Assistant Dean

Graduate Offerings:

Applied Science
Agriculture
Distributive Education
Engineering and Technology
Home Economics
Industrial Education
Occupational Therapy
Paper Technology
School of Applied Arts and Sciences

The School of Applied Arts and Sciences includes the following departments: Agriculture, Distributive Education, Engineering and Technology, Home Economics, Industrial Education, Military Science, Occupational Therapy and Paper Technology.

The School of Applied Arts and Sciences offers a graduate program in Engineering Technology, Home Economics and Occupational Therapy and cooperates with the School of Education in providing teacher-education programs in Teaching of Distributive Education, Teaching of Home Economics and Teaching of Industrial Education (See Education, Section II of this bulletin for these programs).

APPLIED SCIENCE

Kohrman, Dean; Professor, Metz; Associate Professor, Johnson

Open to Graduates and Upperclassmen

520 Principles of Practical Arts and Vocational Education 3 hrs.

The place and function of the practical arts and vocational education in the modern school; fundamental principles upon which this work is based. For teachers of agriculture, business, home economics, industrial subjects and administrators.

Open to Graduates Only

600 Introduction to Technology 3 hrs.

A study of the development of the technical education movement and the function, philosophy, trends, and types of technical education programs.

605 Studies in Technology 1-4 hours

A course designed to take advantage of certain opportunities offered through industry in the form of technical workshops, seminars, and short courses. These may be offered on campus or in industrial plants.

622 Occupational Laboratory Experience 2-3 hrs.

A supervised business and industrial experience program involving full-time employment for at least six weeks or equivalent. Students will study and participate in experiences in a specific occupational area. Prerequisite: consent of instructor.

625 Administration and Supervision of Practical Arts and Vocational Education 2 hrs.

The functions of administration and supervision; problems involved in the organization and operation of practical arts and vocational education programs. For administrators, supervisors of vocational education and those wishing to prepare for such positions.
626 Trends in Technology and Employment 2 hrs.
Major occupational shifts resulting from recent advances in science and technology. The changing nature of the labor force, economic and sociological implications of automation and atomic power. Attention will be given to educational programs needed to meet technical and skilled manpower requirements.

628 Seminar in Vocational Education 2 hrs.
An intensive study of problems related to vocational education. For teachers, coordinators and administrators who have completed at least fifteen hours of graduate credit.

**Agriculture**

Open to Graduates and Upperclassmen

520 Soil Science 2 hrs.
Treats soil as an organic resource. Soil formation, composition and classification are related to various physical, chemical and biological factors in the environment. Consideration is given to soil fertility, water retention and runoff, plant growth and land use as they are affected by these factors.

**Distributive Education**

Trimpe, Head; Associate Professors Dannenberg, Fidler

Open to Graduates and Upperclassmen

500 Seminar in Distributive Education 2-4 hrs.
An intensive study of problems related to distribution and education for distribution. This seminar is especially recommended for seniors and graduates in the distributive education department.

570 Organization and Operation of Distributive Education 2 hrs.
Deals with the organization and operation of distributive education in relation to the total education program. It is concerned with preparatory, cooperative and adult programs. Consideration is given to advisory committees and local, state and federal relationships.

571 Job Supervisory Training 2 hrs.
Provides for mastery of the techniques and skills used in supervision of employees. It deals with conference leading, how to train, how to develop the skills of leadership and the corrective interview. This training is useful for vocational teachers and those preparing for supervisory positions.
572 Teaching Techniques for Cooperative Education 2 hrs.
Deals with the methods and techniques used in teaching the related subjects to students on cooperative work-study programs. Special emphasis will be given to group and individual methods of instruction.

573 Coordination Techniques in Cooperative Education 2 hrs.
A study of the duties and responsibilities of the coordinator. Includes the organization of training programs, supervision of trainees on the job and the development of working relationships among the school, business and home.

598 Readings in Distributive Education 1-3 hrs.
Directed, individual study of topics and areas of interest which are not otherwise treated in departmental courses. Consent of Department Head.

Engineering and Technology

Giachino, Head; Professors Beukema, Nantz, Scott, Wilcox; Associate Professors Day, Groulx, S. Johnson, Rayl, Weeks; Assistant Professors Haynes, Hesselberth, Reisbig

INDUSTRIAL

502 Industrial Supervision 3 hrs.
A study of the duties and responsibilities of the industrial technician, supervisor and engineer. Techniques of supervising personnel are discussed with special emphasis on the attributes of the successful supervisor versus the less successful supervisor.

504 Industrial Safety 2 hrs.
A course dealing with the importance of safety in industry. The cost of accidents, fundamentals of accident prevention, the elements of an effective safety program, accident investigation, and first aid are all aspects to be studied.

506 Work Simplification 3 hrs.
A course devoted to the fundamentals of motion economy and work simplification. The techniques of taking 16 mm. motion pictures of manufacturing operations and consequent analysis of the operations will be stressed. Students will practice the techniques studied in industrial situations. Prerequisites: ET 304 or equivalent.

508 Advanced Quality Control 3 hrs.
Analysis and application of new concepts in the fields of quality control. Tests of significance, probability studies and other use of statistics as applied to quality control will be stressed. Prerequisite: ET 308 or equivalent.
ELECTRICAL

541 Electrical Fields 3 hrs.
A course of electrostatics covering such topics as Coulomb's Law, Gauss' law, Maxwell's equation, Green's function, Laplace's and Poisson's equations. Will include laboratory.

542 Advanced Circuits 3 hrs.
A course in advanced electrical circuits analysis covering such topics as the use of Laplace transforms, Fourier transforms, conservation of charge, circuit matrices and circuit graphs. Will include laboratory.

545 Electrical Power Systems 3 hrs.
Economic and engineering considerations concerning power plants, generating equipment, transmission and distribution systems, switch gear and industrial power distribution.

MECHANICAL

550 Product Engineering 3 hrs.
An analysis and evaluation of the engineering elements involved in the designing, testing, production, and economies of a product. Pre-requisite: ET 230, ET 353.

551 Welding Design Analysis 3 hrs.
Modern techniques of electron beam welding, inertia welding, application of the laser for welding, use of various protective enclosures, plasma arc welding, automated electronic welding and weld testing are studied. Problems in design and production methods are analyzed.

552 Technical Illustrations 3 hrs.
A course involving the techniques of illustrating for technical publications such as engineering reports, technical and service manuals, parts catalogs, etc. Emphasis is placed on preparation of illustrative materials for photo-offset reproduction.

553 Industrial Drafting Practices 2 hrs.
A course dealing with the organization, administration, and procedures and methods involving personnel, planning, equipping and systematizing an industrial drafting department. Also covered will be an analysis and supervision of related drafting services such as reproduction and documentation of engineering drawings, technical library, drafting standards as well as a brief study of numerical control as it applies to production drafting. Prerequisite: Production Drawing 331.

554 Product Design and Development 3 hrs.
A course in the design and development of a product for eventual manufacturing and sale. A complete working model or prototype, produced in the applicable laboratories must be included with product proposal, engineering documentation and engineering analysis of the student's design.
556 Engineering Analysis 3 hrs.
Application of vector analysis and differential equations to the solution of complex engineering problems. Prerequisite: Math 223 or equivalent.

558 Mechanical Vibrations 3 hrs.
A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Prerequisite: Dynamics 355 and Math 223.

For Graduate Students Only

601 Studies in Applied Technology 1-4 hours
A course designed to encourage field research where theory learned in class is applied to a selected problem existing in industry. Emphasis is placed on analyzing, planning, and performing a given industrial task assigned and supervised by a member of the department's staff. The work accomplished may be used as a basis for a thesis.

602 Industrial Project Engineering 3 hrs.
A study of the functions and responsibilities of the project engineer relative to the redesign or renovation of existing or addition of new plant facilities. Determination of project scope by feasibility study is discussed. Aspects stressed include: preparation of plans and specifications, engineering progress reports, analysis of bids, shop testing and inspection, equipment installation, and acceptance testing. Prerequisite: ET 404 or equivalent.

603 Supervision of Industrial Training 3 hrs.
A course emphasizing the philosophy and responsibilities of the Industrial Training Director. Techniques and methods of evaluating training in industry will be reviewed. Administrative procedures to develop training programs in apprenticeship, supervisory training, supervisory training, on-the-job training and other concepts of industrial training will be studied.

ELECTRICAL

610 Electricity - Electronics Seminar 2-3 hrs.
Consideration of specific problems associated with the various aspects of electricity and electronics. Students will select individual topics for research and seminar presentation. Prerequisite: Consent of the instructor.

642 Network Synthesis 3 hrs.
Synthesis of passive networks in the frequency and time domain; Foster and Lauer forms of 2-terminal LC, RC, and RL networks; Brune's method of RLC synthesis, Ladder networks, and approximation. Laboratory work included.
644 Microwave Techniques  3 hrs.
   Co-axial lines, wave guides, oscillators, mixers, amplifiers, test equipment, and measurements. Prerequisite: ET 641.

646 Pulse Circuits  3 hrs.
   Analysis and synthesis of switching, waveshaping, and control circuits. Prerequisite: ET 340 or equivalent.

MECHANICAL

650 Advanced Physical Metallurgy  3 hrs.
   Classification and selection of metal alloy systems and heat treatments for engineering applications. Special emphasis on cost, corrosion and the metallurgical factors that govern the mechanical and fabricating properties of engineering alloys.

651 Advanced Strength of Materials  3 hrs.
   An advanced course that continues the concepts presented in “Strength of Materials,” with emphasis on use of higher mathematics to solve fatigue and stress problems.

652 Advanced Testing of Materials  3 hrs.
   Further work on an advanced level utilizing the operating principles of testing equipment with emphasis on design techniques and interpretation of test results.

Home Economics

Herald, Head: Professor Taylor; Associate Professors Bessom, Savage, Rowe

Open to Graduates and Upperclassmen

500 Advanced Textiles  2 hrs.
   The study of the composition, construction, finishing, and care of textiles. Prerequisite: 100.

502 Textile Clinic  2 hrs.
   A workshop type program. Specialists and visual aids will present the newest information on textiles. To be followed by a study of methods implementing the new learnings.

504 The Socio-Psychological Aspects of Clothing  2 hrs.
   A study of the social and psychological implication of clothing for the individual and the family. Clothing has many sociological and psychological implications, for the person as an individual and as a member of society. This course would bring together some of the pertinent findings of these two fields as they relate to the total area of clothing, ranging from the individual’s selection of clothing as an ex-
pression of personality and social status to the impact of the clothing and fashion industries on the national economy.

510 Advanced Nutrition

3 hrs.

Study of recent developments in nutrition through readings and experiences. Prerequisite: Nutrition and Meal Planning.

512 Institutional Management

3 hrs.

Study of institutional administration, job analysis, labor policies, personnel problems and cost control in different types of food-service institutions. Prerequisite: Meal Planning.

514 Food Technology

2 hrs.

Food preparation with special emphasis on individual problems related to school food teaching units. Study of commercial food preparation.

518 Advanced and Experimental Foods

4 hrs.


520 Equipment and Demonstration Techniques

4 hrs.

A study of principles of equipment and demonstration as applied to the areas of home economics. Prerequisites: 210, 200 or consent.

552 The Homemaking Center and the Equipment

2 hrs.

Consideration of fundamentals in planning laboratory and living area in terms of needs with special emphasis on built-ins, furnishings and equipment. Selected problems to be chosen by the individual.

598 Readings in Home Economics

2-1 hrs.

Graduate students who have completed an undergraduate degree in Home Economics or related fields may enroll with permission of the head of the department to do supplementary work in a specific area to meet requirements for graduate courses.

Open to Graduates Only

600 Clothing Techniques

2 hrs.

Planned to meet the needs of the advanced student in clothing construction techniques.

602 Tailoring Techniques

2 hrs.

Specialized tailoring techniques in coats and suits. Problems in the use and performance of new textiles in clothing included.

604 Studies in Clothing and Textiles

2 hrs.

A concentrated study of specifics within these fields dependent on the interests of the students.
606 Seminar in Home Management 2 hrs.
Utilization of case studies and research findings for the purpose of analyzing and understanding home management. Through analysis of case studies, students gain insight into the principles of management and their application.

608 Seminar in Textiles and Clothing 2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of 2 hours credit in seminar.

610 Studies in Foods and Nutrition 2 hrs.
A concentrated study of specifics within these fields dependent on the interests of the students.

612 Seminar in Foods and Nutrition 2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of 2 hours credit in seminar.

616 Consumer Buying 2 hrs.
Study of marketing problems and consumer credit. Students work on individual problems which concern the techniques of buying a specific type of consumer goods.

618 Teaching of Specific Subjects in Home Economics 2 hrs.
An intensive study of problems in the specialized areas of Home Economics such as: Foods and Nutrition, Home Furnishings, Textiles and Clothing, Methods, etc. May be enrolled in more than once. Maximum credit not to exceed 4 hours.

636 Teaching for Independent Living 3 hrs.
Designed to provide a practical background and a basic understanding of problems found in the homes and communities of the home bound. This course will be concerned with general home problems related to management, personal adjustment and care of the family members.

640 Supervision of Home Economics 2 hrs.
New developments in the teaching of home economics and the supervision of student teaching will be studies. Problems of the student will receive major consideration.

644 Curriculum Planning and Evaluation in Home Economics 3 hrs.
Emphasis on family and social changes and developmental needs of students as a basis for curriculum study and evaluation techniques in secondary Home Economics programs.

648 Adult Education in Homemaking 2 hrs.
A study of the developmental needs of adults and changes in society affecting families as a basis for developing adult programs in homemaking education.
650 Advanced Study of Home Management 2 hrs.
Emphasis on the philosophy, current concepts and methods of home management. Attention will be given to the newer aspects of time and motion study with special projects in work simplification. Analysis of the use of resources for achieving goals in stages of family life cycle.

652 Family Life Education 2 hrs.
Designed to develop ways of implementing newer methods and techniques used in an effective homemaking program.

654 Housing 2 hrs.
A study of economic and social aspects of housing. Single, duplex and multiple housing problems are considered. Prerequisite: Housing and Home Furnishings.

660 Studies in Family Relations 2 hrs.
A concentrated study of the specifics within these fields dependent on the interests of the students.

662 Seminar in Family Relations 2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of 2 hours credit in seminar.

664 Seminar in Home Economics Education 2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of 2 hours credit in seminar.

Industrial Education
Feirer, Head; Professors Bendix, Lindbeck and Risher; Associate Professor Stegman; Assistant Professor Bruce

Open to Graduates and Upperclassmen

500 Furniture Production 2 hrs.
Design and production of furniture, including the development of all phases of tooling and jig and fixture design necessary for the mass production of a piece of furniture. Prerequisites: General Woodworking 100 and Principles of Wood Processing 200.

501 Cabinetmaking 3 hrs.
This course is designed to include finishing carpentry such as kitchen and built-in cabinets, millwork, (including trim and finish flooring), floor covering, relationship of electrical work, plumbing and heating to the building trades. Prerequisites: General Woodworking 100 and Principles of Wood Processing 200.
502 Wood Technology

Experience in and study of the technical aspects of cellulose materials and their use in construction and manufacture. Included will be a study of the characteristics of lumber and man-made wood products, applied research done by the Forest Products Laboratory, and testing of materials. Prerequisites: General Woodworking 100 and Principles of Wood Processing 200.

520 Architectural Graphics

A graphical study of architectural details and methods of construction relative to frame and masonry veneer residential dwellings. Emphasis is placed on residential planning and design principles, calculating safe loads, FHA minimum property standards, and local codes. Each student is required to design a single family dwelling, including preliminary studies, floor plans, elevations, all necessary details, plot plan, and specifications. Methods of estimating, heat loss and gain calculation, and financing are included. Drawings will be reproduced on white print equipment. Prerequisite: 226.

522 Laboratory Practices in Drafting

A course in the methods and problems of teaching drafting and graphics on the secondary and post secondary level. In addition, emphasis is placed on a review of secondary and collegiate texts, resource materials, problem design and checking of drawings. Prerequisite: 18 hrs. in drafting.

538 Problems in Metalworking

Practical laboratory experiences in forging, foundry, heat treating, machine shop, and arc and acetylene welding. Course will emphasize methods of selecting and developing course materials for junior and senior high school students. Course content will be adapted to meet the needs of individual students. Prerequisite: 234.

548 History and Philosophy of Industrial Education

Industrial Education in America, with special attention to European influences, experiments, industrial developments and theories. Emphasizes developments leading to modern practices in industrial arts, vocational-industrial and technical education.

560 Electricity-Electronics for Teachers

Designed for junior and senior high school shop and laboratory teachers of electricity and electronics. Emphasis will be placed on new methods and materials. Laboratory practice will be provided in applying new techniques and development of teaching projects in electricity and electronics. Industrial Arts and science teachers should find this workshop quite valuable in the light of our increasing technological development.
570 Arts and Crafts Techniques 2 hrs.
Advanced laboratory experiences in the fields of internal plastic carving, leather work, model work, archery, photography and related crafts in conjunction with a study of current technical literature in these areas. Written reports will be required. Course content will be adapted to individual needs.

573 Mechanics and Conditioning of Equipment 1-2 hrs.
A study of the principles of machining wood, metal, and synthetic materials. Practice in installation, adjustment, preventive maintenance and conditioning of power equipment will be included. Particular emphasis will be given the relationship between proper installation and condition to efficient machine operation.

582 Applied Fluid Power 2 hrs.
Advanced study of typical hydro-electric and pneumo-electric transmission and control systems. Emphasis is on industrial applications of fluid power systems. Laboratory experience includes the design and application of a fluid power or control system to a manually powered or controlled machine.

588 Power Laboratory Techniques 2 hrs.
An advanced course for laboratory teachers dealing with recent developments in energy and power applications. Planning and organizing laboratory facilities, tools, equipment, safety requirements, instructional materials, textbook selection and instructional devices for providing power mechanics and/or automotive instruction are included. Prerequisite: 180 or consent of instructor.

590 Industrial Arts for the Elementary School 2 hrs.
This course is concerned with the problems of organizing, correlating, and teaching constructional activities in the elementary grades. Course materials, techniques, and materials in the industrial and craft areas will be stressed, through the construction of a teaching unit.

592 Aviation for Classroom Teachers 2 hrs.
A course dealing with the educational, social, economic, and political implications of aviation in the modern world. A study will be made of basic aviation materials and activities that are appropriate for different grade levels. Consideration will be given to aviation literature and visual aids suitable for youngsters. Opportunities will be provided for participation in a variety of aviation experiences. This course is open to elementary and secondary education students.

593 Arts and Crafts for Teachers 2 hrs.
This course will cover advanced craft techniques in the areas of art metal, jewelry, leather, plastics, wood crafts, and other related experiences. Teaching procedures, methods, and materials will be emphasized.
594 Home Mechanics for the Blind 2 hrs.
A course to fulfill the needs for general knowledge and basic skills in home mechanics in the areas of woodworking, electricity, plumbing, and general maintenance.

598 Special Problems in Industrial Education 1-3 hrs.
Designed for qualified individual graduate students wishing to pursue special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected in the Industrial Education Department or in an associated department, with the approval of the Industrial Education Department Head and the faculty member under whom the student desires to work. Applications must be submitted and approved prior to the election of the course. Students may register more than once for this course.

Open to Graduates Only

605 Problems in Woodworking 2 hrs.
Advanced laboratory experiences in the area of woodworking. Content selection, project building and new techniques will be covered. Written reports based on current literature will be required. The areas to be covered will be dependent on individual needs.

620 Advanced Drafting Practice 2 hrs.
Advanced laboratory experiences in mechanical, architectural and machine drawing in conjunction with a study of current technical literature. Written reports are required. Advanced instruction in engineering drawing and descriptive geometry will be included.

Study and analysis of current practices in technical representation. Course content is based on current industrial practices and techniques, plus the development of skill to teach this material at the high school and junior college level.

630 Research in Machine Shop Practices 2 hrs.
For teachers who wish to study and develop advanced techniques in the area of machine technology.

641 Trends in Industrial Education 2 hrs.
A study of current literature in the field. Research studies will be reviewed. Commercial and industrial publications will be studied to determine their place in the school shop program.

643 Measurement in Industrial Education 2 hrs.
A study of the techniques involved in the preparation and use of teacher-constructed written and practical tests. Attention will be given to the interpretation of test results and the evaluation of student achievement.
644 Project Planning and Designing 2 hrs.
A study of the principles of design and their application to shop projects. Special attention will be given to planning and designing new projects which will enrich the school shop program.

645 Shop Planning 2 hrs.
Planning of the shop and selecting the equipment and supplies for an industrial education laboratory. A study of the basic principles of planning and equipment selection to reflect modern industrial education philosophy.

646 Teaching Problems in Industrial Education 2 hrs.
Special attention will be given to teaching methods and the techniques useful to experienced industrial education teachers. Emphasis will be placed on problem solving in industrial education, pupil planning and the demonstration technique. Each student will be required to work out a program of teaching methods useful in his particular school.

This in-service course for industrial teachers will provide opportunities to learn the latest in technological practices in industry. Whenever possible, cooperation of an industrial group such as the American Foundrymen's Society will be utilized in planning and organizing the course. This course will be offered for two semester hours per unit and may be elected for a total of four semester hours.

(Description same as Industrial Education 647.)

650 Advanced Problems in Graphic Arts 2 hrs.
Opportunity is provided for the individual student to undertake advanced study of technical problems in the field of graphic arts. Advanced instruction in imposition, presswork and linotype composition will be available.

661 Electricity for Teachers 2 hrs.
For teachers planning an electrical area in their general shop or planning to teach on a unit shop basis. Special attention will be given the development of suitable instructional activities and technical information related to them. Prerequisite: 265, 560.

670 Problems in General Shop 2 hrs.
Practical experiences in drawing and planning, woodworking, metalworking, electricity, and craftwork will be required. Course will include selection, development and preparation of materials and instructional media for instruction at the junior and senior high school levels.
Industrial Education Materials 2 hrs.
A study of basic materials and processes of industry with emphasis on new materials and processes. Written reports will be based on a review of government studies, handbooks, industrial publications and scientific reports. Each material and process studied will be evaluated as to its working characteristics and possible application to school shop instruction.

Studies in General Shop Content and Practice 2 hrs.
Study of current general shop content with emphasis on new instructional areas, science applications in industry, multiple-activity instructional practices, and the selection and purchasing of equipment, tools, and supplies. The adaptation of experiments and exercises to general shop instruction will be included.

Occupational Therapy
Kiss, Head; Associate Professor Tyndall; Assistant Professor McGinley

Open to Graduates and Upperclassmen

Advanced Weaving 2 hrs.
Studies in the more complex forms of fabric structure and design. Offered as needed.

520 Kinesiology 3 hrs.
Investigation and analysis of human motion. Includes a study of body mechanics, principles of muscle contraction, surface anatomy, range of motion and muscle testing, and activity analysis. This study is accompanied by a review of basic functions of the musculo-skeletal and nervous system.

524 Medical and Orthopedic Conditions 4 hrs.
A series of lectures concerned with medical and orthopedic conditions which are treated by the occupational therapist. Prerequisite: Consent of Department Head.

Open to Graduates Only

Studies in Occupational Therapy 2-4 hrs.
Designed to cover current developments in occupational therapy. Prerequisites: OTR. Offered as needed.

Professional Literature 2 hrs.
Analysis and appraisal of current professional literature. Consideration will be given to trends, philosophy, and practice in occupational therapy.
632 Supervision of Occupational Therapy 2 hrs.

Place and function of supervision in Occupational Therapy. Practical problems in the supervision of staff therapists, students and volunteer groups. Techniques of effective leadership will be discussed and emphasis will be placed on the relationship of these techniques to the achievement of departmental, hospital and community goals.

633 Administration of Occupational Therapy 2 hrs.

A study of problems confronting the administrator of occupational therapy such as functional organization, personnel policy, planning of physical facilities, finance, legal aspects and hospital-community relationship.

650 Clinical Training and Scheduling 2 hrs.

Objectives and management of clinical training from the viewpoint of the school and the affiliating center. Mechanics of the student-training schedule and the student-rating program.

Paper Technology

Janes, Head; Professor Diehm

530 Polymer Chemistry 2 hrs.

A study of the molecular and chemical structure of high molecular weight compounds as related to their rheological, mechanical, chemical, and optical behavior. Special emphasis is on both natural and synthetic polymers of significance to the paper industry. Methods for characterization of both the bulk and solution properties of polymers are covered in detail. Prerequisite: Organic Chemistry 360, 361; Physics 112 or 110.
School of Business

ARNOLD E. SCHNEIDER,
Dean

Graduate Offerings:
Accounting
Business Education
General Business
Management
Marketing
School of Business

The School of Business includes the departments of Accounting, Business Education, General Business, Management and Marketing. The function of the School of Business is to prepare students for positions in business, industry and government. The program leading to the degree, Master of Business Administration, is designed to prepare graduate students to function effectively in administrative positions in these fields.

The student is challenged to develop the judgment, discriminating capacity, knowledge and understanding which will permit him to work efficiently in administrative and other leadership roles. Under the guidance of the graduate staff of the School of Business, personal programming for the participant is provided as an alternative to a set schedule of required courses.

The School of Business cooperates with the School of Education in offering the curriculum, The Teaching of Business Education.

Accounting

Burke, Head; Professor Wetnight; Associate Professor Everett;
Assistant Professors Morris, Schaeberle and Zelechowski

Open to Graduates and Upperclassmen

510 Advanced Financial Accounting 3 hrs.
An intensive study of asset valuation, liabilities, corporate capital, and their relationship to income. Prerequisite: Accounting 211 or 519.

511 Advanced Accounting 3 hrs.
Accounting for problems in special sales, consolidations and equities. Prerequisite: 311 or 510.

512 Cost Accounting 3 hrs.
The relation of cost accounting to management for control; general principles involved in constructing a cost system; distribution of cost materials, labor and burden; cost records; operating reports; standard costs and budgetary control. Prerequisite: Accounting 211 or 519.

513 Accounting Systems 3 hrs.
The principles of accounting system development. Will include the systems of various types of businesses. Prerequisite: 211 or 519.

514 Income Tax Accounting 3 hrs.
Federal income tax laws for individuals, partnerships and corporations. Prerequisite: Accounting 211 or 519, or consent of instructor.
516 Auditing 3 hrs.

The theory and practice of making audits of business enterprises and government agencies. Prerequisite: Accounting major.

517 Cost Accounting—Theory and Practice 3 hrs.

The development and application of cost accounting principles to industrial situations. The course includes the application of costs to operations and to products. The preparation and analysis of detailed cost information, as well as methods and procedures for solving complex cost problems encountered in industry, are included as a major part of the course. Prerequisite: 512.

518 Accounting Theory and Problems 3 hrs.

Theoretical consideration of accounting problems. The analysis of the type of problems that are found in C.P.A. examinations or are encountered by business management. Prerequisite: Accounting major.

519 Administrative Accounting 3 hrs.

Basic topics are the accumulation of financial data and the preparation of financial statements. Included are accounting topics related to business assets and entities and an introduction to the analysis and interpretation of financial statements. Designed especially for graduate students entering the MBA program who have not previously completed the equivalent at the undergraduate level. Prerequisite: Graduate standing. Not open to students with credit in accounting.

598 Readings in Accounting 1-4 hrs.

Directed individual study of bodies of knowledge not otherwise treated in department courses.

Open to Graduates Only

610 Advanced Accounting Theory—Income Determination 3 hrs.

A study of the underlying concepts and principles of the determination of income. Includes the study of the development of these concepts and principles and their future outlook. A study is made of assets evaluation as they relate to income determination.

611 Advanced Accounting Theory—Equities 3 hrs.

A study of the underlying concepts and principles of corporate equities. Includes a study of capital stock, retained earnings, the entity theory and related materials.

612 Advanced Cost Accounting Concepts 3 hrs.

A study of the more mature methods of cost measurement and control. Includes standard cost, budgetary control, profit-volume analysis, direct cost and return on employed capital.

614 Business Tax Planning 3 hrs.

An advanced course in business taxation involving the identification and analysis of tax problems. Income tax strategy is studied involving
the timing of income, types of business organizations, and the various alternative tax treatments. Tax problems of corporate reorganizations, liquidations, estates and trusts, partnerships, and capital gains will also be included. Case studies will be used and research in taxation will be emphasized.

616 Controllership 3 hrs.

The function of the controller in the organization. The controller's relationship to the construction, control, and interpretation of accounts for the internal and external administration of the organization is emphasized. The role of the controller in the organizational structure and relationship to other departments is also considered. Prerequisite: Accounting 512 or equivalent.

Business Education

Jones, Acting Head; Associate Professor McKitrick

584 Improvement of Instruction in Shorthand and Secretarial Subjects 2 hrs.

A study of the latest research findings, materials, teaching procedures, tests and measurements, and possible future development in shorthand.

586 Improvement of Instruction in Typewriting 2 hrs.

A study of the latest research findings, materials, teaching procedures, tests and measurements, and possible future development in typewriting.

588 Improvement of Instruction in Bookkeeping and General Business Subjects 2 hrs.

A study of the latest research findings, materials, teaching procedures, tests and measurements, and possible future developments in the business subject-matter of this field.

589 Organization and Teaching of Office Practice 2 hrs.

A consideration of aims and content of office-practice course in the secondary school, with plans and techniques for organizing and teaching the subject-matter of the course and its laboratory material.

598 Readings in Business Education 1-4 hrs.

A series of directed readings in the area of business education. Prerequisite: Consent of department head.

Open to Graduates Only

600 Seminar in Business Education 3 hrs.

Intensive problem solving in areas of business education. May be repeated. Consent of department head.
680 Principles of Business Education 3 hrs.

682 Guidance in Business Vocations 2 hrs.
The challenges of business education for a changing world of work. Problems and objectives of business education to meet vocational choices of students in today's automated, free-enterprise, democratic society.

683 Supervision and Administration of Business Education 2 hrs.
Principles, practices, and problems involved in the administration and supervision of business education in schools and colleges. Emphasis is placed on the work of the department head, city supervisor, and state supervisor of business education. Consent of department head.

684 Comparative Shorthand Theory 3 hrs.
Principles of shorthand systems related to teaching and learning. Each student will learn an additional system of modern shorthand.

685 Research in Business Education 3 hrs.
The examination and analysis of selected recent doctoral theses and other current research in business education with emphasis on utilization of findings in the upgrading of instruction in secondary school and collegiate business courses. Areas, tools and methodology are examined. Consent of instructor. Prerequisite: Education 601 - Introduction to Research.

687 Post-Secondary Business Education 2 hrs.
The consideration of objectives, materials, and methods of teaching business subjects in junior colleges, community colleges, vocational institutes, and proprietary business schools. Consent of Department Head.

General Business
Schneider, Head; Professors Burdick, Grossnickle, Morrison and Niemi; Associate Professors Adams and Healey
Open to Graduates and Upperclassmen

520 Security Analysis 4 hrs.
Analysis of securities, market values and investment programs. Interpretation of financial reports, factors and conditions. Prerequisite: 326 Investments, or consent of instructor.

524 Financial Management 3 hrs. Fall
Study of the principles and problems underlying the management
of capital employed in the business. Prerequisites: Core subjects for the B.B.A., or consent of instructor.

526 Advanced Life and Health Insurance 4 hrs.

The topics covered include group life and health insurance, business life and health insurance, insured pension plans, estate and tax planning and new developments in the life and health insurance fields. (Prerequisite: 422 Life and Health Insurance or consent of instructor.)

528 Problems in Multiple-Line Insurance 3 hrs.

This course uses the case analysis method in dealing extensively with both personal and commercial risk surveys and analyses. Special problems in rating, loss adjustment, marketing, underwriting, and finance in the property and liability fields are also solved. Prerequisite: 424 Property Insurance or 426 Casualty Insurance and Bonding.

512 Law of Real Property 3 hrs.

The study of the law of Real Property including Property Rights, Mortgages, Leases and Land Contracts.

544 Law of Business Organizations 3 hrs.

The study of the law of Business Organizations including Partnership, Corporations and Trust Organizations.

598 Readings in General Business 1-4 hrs.

Directed individual study of bodies of knowledge in business administration which will enhance the student's areas of interest and competence.

Open to Graduates Only

600 Seminar in Business 3 hrs.

Intensive problem solving in the primary business fields. Consent of instructor required. May be re-elected.

620 The Capital Market 3 hrs.

Study of the sources and flow of demand and supply of credit. The business application of monetary theory to financial institutions and their operational problems. Prerequisite: 520 Security Analysis or permission of the instructor.

622 Corporate Financial Problems 3 hrs.

A study of the financial problems, policies, and procedures employed in diversification, expansion, merger and other forms of corporate change.

624 Financial Statement Analysis 3 hrs.

Intensive financial analysis to establish trends and fiscal controls in business operations. Structural investigation of financial statement relationships utilizing ratios, capitalization of earnings, and other analysis media fundamental of management decision and action.
626 Insurance and Government 3 hrs.

This course covers the historical development, legal background, and methods of governmental supervision of the insurance industry. Principal emphasis will be placed upon state supervision of insurance, but the role of the federal government in present and future regulation is also considered. Prerequisite: consent of instructor.

640 Legal Controls of the Business Enterprise 3 hrs.

An analysis of the current legal problems as they apply to the control and regulation of various types of business enterprises.

642 Statistical Interpretation 3 hrs.

A survey of the advanced statistical techniques as applied to business problems. Includes probability theory; estimation of proportion, means and variances; test of hypothesis, simple and multiple regressions. Also include topics selected from the following fields: sequential analysis; nonparametric methods; elements of experimental design; analysis of variance and introduction to statistical decision theory. Prerequisite: A course in statistics or consent of instructor.

Management

Hartenstein, Head; Professors Schneider, Booker and Niemi; Associate Professors Leader and Couch; Assistant Professor Ansari

Open to Graduates and Upperclassmen

550 Management Problems 3 hrs.

An opportunity to approach business from the case-study method by working solutions to actual management problems.

552 Management Report Writing 3 hrs.

A study of the techniques in and applications of management reports and management-report writing. Actual management reports in the various fields will be studied. The development and practice of technical report writing will be stressed.

553 Planning and Analysis for Production 4 hrs.

An examination of modern methods of analysis, their relation to the production process and their utilization in management planning. Cases and problems will be utilized. Prerequisite: Principles of Economics, Statistics 244.

554 Introduction to Management Science 4 hrs.

Modern scientific techniques used in business and industry for controlling operations, maximizing profits and minimizing costs. Allocation of men, money, and machines among alternative uses. Other strategies and control methods applicable to management, marketing, the finance. Prerequisite: Statistics 244.
555 Electronic Data-Processing 4 hrs.
Examination of current literature in electronic data processing with special emphasis on systems analysis, applications of computers to business problems and feasibility studies.

556 Office Management 4 hrs.
Areas of office services from the managerial viewpoint. A brief overview of the problems of organizing, constructing, installing and maintaining office systems.

557 Inventory Management 3 hrs.
The practical application of modern management techniques in the definition and solving of problems in inventory systems. Prerequisite: Statistics 244 or Equivalent.

562 Administrative Dynamics 4 hrs.
The development of a model to integrate management principles, administrative behavior, small group research and individual psychological theory. Both static and dynamic models are analyzed.

564 Industrial Dynamics 4 hrs.
Development of a model for the integration of the functional areas of business to create more successful management policies and organizational structures. Prerequisite: Statistics 244 or equivalent.

598 Readings in Management 1-4 hours
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. May be repeated for credit by permission of Department Head.

Open to Graduates Only

600 Seminar in Management 3 hrs.
Intensive problem solving in advanced management topics under simulated conditions of a business conference, including the preparation of a major staff report. Consent of instructor required. May be repeated for credit by permission of Department Head.

650 Managerial Aspects of Labor Law 3 hrs.
Background and consequences for business policy of law governing collective relationships between employers, employees, and their representatives with special emphasis on interpretation and evaluation of current legislation.

651 Analysis of Administrative Behavior 3 hrs.
Analysis of the contributions of management theory and of the behavioral sciences to modern administrative practices; group and individual behavior as related to and affected by the administrative process, lectures, cases, conferences. (Not open to students having received credit for Management 451, Administrative Behavior.)
652 Business Policy 3 hrs.
Integration of background acquired by the student from such varied fields of instruction as accounting, finance, industrial management, law, personnel administration and marketing. Top management problems emphasized. Discussion of actual business cases.

654 Problems of Personnel and Industrial Relations 3 hrs.
A critical examination of current practices and trends in personnel administration and industrial relations in the light of recent research and findings in the field of human relations in industry. A review of personnel and labor relation functions in the enterprise, with attention to the application of theory and principles, the conduct of personnel research activity, and the relation of the industrial relations function to the goals of the enterprise as a whole.

655 Organization Theory 3 hrs.
An interdisciplinary approach towards the analysis of the variables affecting the modern business organization with emphasis on the relationship of the role of the social sciences to the behavior of the segments of the firm. Prerequisite: Management Principles or consent of instructor.

658 Advanced Management Practices 3 hrs.
Current trends and advanced problems in the organization and management of business enterprises. Prerequisite: Consent of instructor. May be repeated for credit by permission of Department Head.

Marketing
Trader, Head; Associate Professors Hardin, Otteson; Assistant Professors Orr, Kanges and Japinga

558 Purchasing Problems 3 hrs.
Value analysis and the evaluation of purchasing department performance. Problems involve organization, materials management, operation, vendors relations, and make or buy decisions. Prerequisite: Purchasing 358 or permission of instructor.

570 Advertising Media and Campaigns 3 hrs.
A frame of reference for the evaluation of media and advertising through communications research. Course includes both theory and practice of media research, use of Audit Bureau of Circulation data, broadcast ratings, copy testing, development of media plans and scheduling as required for advertising campaigns. Prerequisite: Advertising 374 or permission of instructor.

572 Advertising Copy and Layout 3 hrs.
Study of the theory and practice in the writing, preparation and typographical composition of advertising including the writing of radio,
televisions, and newspaper copy. Prerequisite: Advertising 374 or permission of instructor.

573 Retail Merchandising 3 hrs.
A study in the development of an optimum blend of product, place, promotion, and price in the final consumer market. Includes study of buying policies, terms, negotiations; resource selection and development; merchandise information, expense control systems and budgets; sales and customer analysis; pricing; government regulations. Prerequisite: Principles of Retailing or permission of instructor.

574 Marketing Problems 3 hrs.
Analysis of current marketing problems utilizing the case method of study. Prerequisite: Marketing 240 or permission of instructor.

575 Marketing Projects 1-4 hrs. Var.
Concentrated study of specific areas of Marketing which seem to warrant current attention and in which the student indicates a strong interest. Prerequisite: Consent of instructor.

576 Marketing Research 3 hrs.
Designed to include an introduction to market research, the procedures and applications of research, and the accomplishment of a research project. Term project includes selection of a problem, preparation of questionnaire, data collection, analysis of data, and final report. Prerequisite: 240, Jr. or Sr. status, or approval of instructor.

577 Advertising Strategies 3 hrs.
Involves the analyses and preparation of advertising as a communicative tool. Utilizes case studies, discussions, extensive readings in the areas of consumer markets, media selection, budgeting, product promotion, and retail advertising coordination. Capstone course for advertising students. Three one hour weekly sessions plus field work and individual consultations. Prerequisite: Advertising 374 or permission of instructor.

578 Marketing Logistics 3 hrs.
An analysis of problems relating to the movement, handling and storage of industrial products. Attention will also be given to changing market conditions and industrial structure as they affect the physical distribution of industrial goods. Prerequisite: Marketing 240 or permission of instructor.

579 International Marketing 3 hrs.
An examination of the theories and principles of international marketing. Attention directed to related commercial policies, trade practices and procedures, and marketing research tools and techniques needed to locate and evaluate foreign markets. Prerequisite: Marketing 240 or permission of instructor.
598 Readings in Marketing 1-4 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisite: Consent of instructor.

Open to Graduates Only

600 Seminar in Marketing 3 hrs.
Intensive problem solving in the primary business fields. Consent of instructor required.

670 Marketing Analysis 3 hrs.
A comprehensive analysis of marketing theory and procedures. Designed for those students who have not had the undergraduate course in Marketing. Prerequisite: Consent of instructor.

672 Marketing Management 3 hrs.
Analysis of marketing activities from the management point of view. Includes study and decision making relative to competition, demand analysis, cost analysis, product design, promotion, pricing and channels of distribution.

674 Market Programming 3 hrs.
Designed for special emphasis toward developing a total marketing strategy within an organization. Practical application of the marketing tools and techniques to a current problem originating in a business organization. Prerequisite: Consent of instructor.
School of Education

JAMES H. GRIGGS,
Dean

ROLAND S. STROLLE,
Assistant Dean

Graduate Offerings:

Teacher Education
School Services
Physical Education for Men
Physical Education for Women

School of Education

The School of Education includes the following departments and units: Teacher Education, School Services, Physical Education for Men, Physical Education for Women, Directed Teaching, Campus School, the Psycho-Educational Clinic, and the Educational Resources Center.

Its purpose is to prepare carefully selected students through well defined teacher education curricula for administrative, supervisory and instructional positions in the public schools.
Teacher Education

Griggs, Dean; Travers, Distinguished University Professor; Ulry, Head; Professors Buelke, Chiara, Eisenbach, Frederick, Govatos, Juul, Moore, Overton, Schroeder, Sebaly, Swickard; Associate Professors Adams, Heger, Heinig, Kanzler, Lambe, McGinnis, Martin, Snow; Assistant Professors Bodine, Bosco, Brail, Erickson, Fraser, McMahan, Middleton, Myer, Schlack and Turansky.

CORE COURSES

Each graduate student in Education, regardless of specialization, is expected to show competence in at least three professional areas: research, curriculum, and foundations. These are considered minimal requirements for career positions as teachers, administrators, guidance personnel, or curriculum specialists. Such competence will normally be provided through 12 semester hours of course work in the following courses: 601, 602, 603, and 604. In certain curricula, such as Guidance and Secondary Teaching, modifications of this requirement are permitted to provide for needed flexibility.

Open to Graduates Only

601 Introduction to Research in Education 3 hrs.

This course is intended to develop an understanding of the major types of educational research and application of research findings to educational problems. Emphasis is placed upon familiarity with sources of research, competence in the interpretation of research reports and abstracts, understanding of the techniques of conducting discriminating search of the literature, and the development of skills in research writing.

602 School Curriculum 3 hrs.

This course, designed for teachers and administrators at all levels, attempts to analyze the decision factors stemming from societal forces, needs and perceptions of learners, and internal structures of the disciplines as guidelines for a curriculum emerging from and serving a democratic society.

603 Social and Philosophical Foundations 3 hrs.

A cultural approach to the development of American educational policy and practice in its broad social setting. Consideration is given to historical, economic, social and philosophical factors which influence educational thought and practice. The need for historical perspective and sound analysis of conflicting points of view are emphasized in the interpretation of current educational issues and the alternative solutions of present educational problems.

604 Psychological Foundations of Education 3 hrs.

An overview of the psychological forces that influence the learner in his educational setting; with special emphasis on the nature and significance of human variability, development of self, measurement and
evaluation, and a consideration and application of principles of learning to classroom situations.

**CURRICULUM AND INSTRUCTION**

**502 Curriculum Workshop** 2 hrs.

Opportunity is provided for teachers, supervisors and administrators in selected school systems to develop programs of curriculum improvement. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audio-visual materials and the like.

**508 Parent Education** 2 hrs.

Places major emphasis on home problems which have educational implications for the child. Parent-teacher relationships, council programs and cooperative efforts for improvement of education in home and in school are studied.

**510 The Elementary Curriculum** 2 hrs.

A consideration of content and procedures to adapt experiences of pupils in elementary schools to modern conditions and to child needs and interests. Individual or committee reports concerning the improvement of various aspects of the elementary school curriculum will be prepared.

**514 Nursery-Kindergarten Education** 2 hrs.

This course will acquaint students with the history and present-day status of Nursery School and Kindergarten education. Research will be utilized as a basis for determining the organization, equipment, curriculum and teaching procedures recommended for this age group.

**516 Driver and Safety Education** 2 hrs.

Deals with several aspects of safety education in the home, school and community, with special emphasis on preparing secondary school teachers of driver training and safety education. Materials and methods, psychophysical testing, sound driving practices, pedestrian protection, "Behind-the-wheel" training in dual-control cars and accident prevention procedures are an integral part of the course.

**518 Audio-Visual Education** 2 hrs.

Acquaints teachers and administrators with the principles and practical uses of multi-sensory aids to education, including field trips, machines, and creative materials.

**519 Production of Instructional Materials** 2 hrs.

Provides many laboratory experiences in making such instructional materials as: bulletin board displays, charts, wet and dry mounting of pictures, film strips and 2" X 2" slides, silk screen process, magnetic boards, handmade slides, mimeograph techniques, etc. Opportunity will be given for students to work on those materials which interest them.
555 Alcohol Education 2 hrs.

Deals with problems of alcohol education in the school and community, with special emphasis on teaching methods and procedures, relationships with governmental and social agencies, and administration of program.

587 Educational Therapy in Reading 2 hrs.

The psychological, sociological and physiological factors affecting children's reading ability, together with laboratory application of such knowledge in the prevention, diagnosis and treatment of reading problems. Open only to experienced teachers by permission of the instructor.

Open to Graduates Only

610 Guiding Child Development in the Elementary School 2 hrs.

Designed to help nursery, kindergarten and elementary school teachers gain an understanding of the manner in which skills, information, attitudes and behavior patterns are acquired and modified. The contributions of each curricular area, such as: language, arts, arithmetic, science, social studies, health, etc., are stressed with emphasis on suitability of experience for different stages of growth, instructional practices and appropriate procedures of evaluation.

615 Seminar in the Teaching of Reading 2 hrs.

Designed to acquaint teachers, reading specialists and administrators with the current literature, research, methods and materials used in teaching children how to read. Special emphasis is placed on reading in relation to other aspects of language and on reading in the content fields.

621 The Secondary School Curriculum 2 hrs.

Covers modern practices and recent emphasis and trends in subject areas of the secondary school curriculum. Prerequisites: 502 The School Curriculum or equivalent.

622 Junior High School Curriculum and Instruction 2 hrs.

A detailed study of the junior high school including: development and purposes; psychological and philosophical foundations; curriculum patterns; student activities programs; and administrative, guidance, and evaluation procedures. Special attention given to the objectives and content of general education, and the basic concepts, methods, and materials that are significant in an instructional program designed to achieve integration of learning through the problem-solving approach.

633 Education of Gifted and Talented Children and Youth 2 hrs.

This course is designed to develop a student's understandings of and appreciation for the abilities, interests, talents, and problems of gifted children and youth. Attention will be given to methods and criteria used in identifying gifted, talented and creative individuals. Through the use of available research data, students will be required to complete a critical evaluation of educational provisions including segregation, acceleration,
and enrichment. Personal, social and cultural factors which directly or indirectly influence the growth and development of these individuals will be considered.

611 Selection and Utilization of Audiovisual Media 2 hrs.
Principles and practices in the selection and utilization of a variety of instructional media and materials. Methods of incorporating media into an integrated learning environment are considered. A critical analysis of research evaluating the use of visual, auditory and other sensory materials in the classroom.

612 Photography for the School 3 hrs.
This course is designed for the teacher who wishes to take advantage of the various photographic media for uses in the classroom. Topics covered will include: use of photographs in teaching, visualizing an idea, composition, lighting, cameras, negatives and prints. Production of filmstrips, photo displays and exhibits will be emphasized. Class limited to 15 students. Each student must have his own camera which will be approved by the instructor.

614 Educational Television 2 hrs.
Designed specifically for the classroom teacher and administrator involved in educational television. Utilization of the medium will be explored with emphasis on use of educational and commercial closed-circuit and airborne ETV programs. Sessions will involve previewing educational telecasts; planning, preparation for production of programs; the roles of the television teacher and the classroom viewing teacher; evaluation of telecasts and associated materials.

615 Individual Problems in Production of Instructional Materials 3 hrs.
Provides an opportunity for the graduate student to pursue in depth one or more production techniques that are of special interest to him. Involves planning, developing a story board for, and producing a project of considerable scope, such as a filmstrip a 2" x 2" slide series, a tape and slide set, 8mm single concept film, an overhead projector transparency set, an instructional radio or television program, or programmed instruction materials. Prerequisite: Ed. 549.

616 Advanced Driver and Safety Education 2 hrs.
Advanced professional preparation to meet the traffic and safety needs of schools, home and community. Special emphasis on traffic safety engineering, and research psychology of the motorist, and techniques of driving instruction. Laboratory experiences including driving range. Prerequisite: Education 546 or equivalent.

617 Organization and Administration of an Audiovisual Program 3 hrs.
Deals with initiating an audiovisual program in a school or school system: surveying available materials; planning a budget; selecting, organizing, cataloging, distributing and servicing materials and equip-
ment; providing in-service education in audiovisual methods for teachers; and interpreting the program to the staff and the community.

**648 Instructional Media Seminar** 2-4 hrs.

Designed specifically for teachers and administrators who wish to concentrate on an intensive study in one or more of the instructional media including: language laboratories, teaching machines, instructional television, conventional audiovisual media, etc., and/or organizational and administrative management of instructional media as they pertain to school systems. Limited to 15 students. Consent of instructor required.

**650 The Characteristics of the College Student** 2 hrs.

This course is intended for students who are preparing to teach at the senior college or the community college level. Its focal point is an understanding of the capabilities, behaviors, attitudes and motivations of the college student. Among the topics to be considered will be academic adjustment, separation from home and family, use or abuse of newly-acquired autonomy, economic stability, campus social life and interpersonal relations as they effect academic achievement.

**655 Seminar in Learning** 3 hrs.

Open to selected graduate students with the consent of the instructor. Analyzes research in the field of learning, including effective factors, in put and retention of information, and concept formation.

**669 Supervision of Student Teaching** 2 hrs.

Deals with the significance of student teaching in the pre-service education of teachers, the role of the supervising teacher, and the problems associated with providing high quality student teaching experiences. Many types of student teaching programs and their components of planning, evaluation, supervisory conferences and follow-up are analyzed. Prerequisite: teaching experience or consent of instructor.

**687 Improvement of Reading in Secondary Schools** 2 hrs. Fall

Designed to aid teachers in developing the reading abilities and skills for their students at the secondary level. Emphasis is on aims, materials and procedures.

**688 Evaluation in Education** 2 hrs.

Designed to develop skills, techniques, attitudes and understandings involved in the measurement and evaluation of individual learning and development as well as in the appraisal of the total school program. Emphasis is placed on the construction, use and interpretation of formal and informal evaluative devices, and upon the development of a philosophy of evaluation as an integral part of learning.

**690 The Community College** 2 hrs.

Studies the historical development of the junior and community college movement; the function of the community college in the total educational program; the divergent aims and curricular requirements
of pre-professional, academic and pre-vocational courses; the problem of
guidance and counseling as an integral part of the program; and methods
and materials of instruction at the college level.

FOUNDATIONS OF EDUCATION

Education 530 Education of Exceptional Children 3 hrs.
This course is primarily concerned with children and youth who are
visually, auditorily, orthopedically and/or emotionally atypical. Empha-
sis will be placed on developing an understanding of the psychological,
sociological, educational and philosophical aspects of each type of ex-
ceptionality. Present programs and services are described and evaluated.
Field trips are made to public and private schools, institutions and
agencies.

585 Mental Hygiene of Childhood and Adolescence 3 hrs.
Deals with the problems of emotional adjustment and maladjustment
in childhood and adolescence. Stresses the development of sound prin-
ciples and practices basic to mental health.

Open to Graduates Only

651 Philosophy of Education 2 hrs.
For graduate students and teachers of experience. Analyzes basic
ideas, concepts and value-systems affecting educational practices; stresses
a comparison of philosophical schools, historical and contemporary.

652 Comparative Education 3 hrs.
Provides an analysis of selected educational systems throughout the
world. The goals, organizational structure, curricula, and methods of
education are examined in relation to the salient features of each culture,
and in comparison to the American educational system. Not offered in
1965-66.

SPECIAL EDUCATION

512 Workshop in Special Education 2-4 hrs.
Designed for teachers, counselors, psychologists, social workers and
others interested in studying selected aspects of special education at
appropriate locations, such as state hospitals and special schools. A
variety of instructional experiences are provided, including conferences.

521 Practicum in Special Education 2 hrs.
This course consists of supervised tutoring of exceptional children
with learning problems, such as the mentally retarded, perceptually
handicapped and emotionally disturbed. Educational evaluation, teaching
materials and techniques, and management of emotional and social
aspects of the learning process are included in the course content. Regu-
lar clinical case conferences directed by the instructor and members of
the institutional staff will be held.
Interdisciplinary Education and Rehabilitation Techniques  
4 hrs. (2 per sem.)

This course is intended to develop a thorough understanding of the roles of the various disciplines involved in the diagnosis, education, and rehabilitation of exceptional children and youth. Lectures, taped and filmed interviews, and live demonstrations are utilized. Class meets during the fall and winter terms on Mondays, from 4:15 to 6:00 for full four hours credit. The course will be applicable to students of speech correction, reading therapy, occupational therapy, psychology and special education as well as to those in general education.

Mental Deficiency  
4 hrs.

A course especially intended for teachers of mentally handicapped children. Also recommended for school counselors, psychologists, social workers and other ancillary personnel. Course objective include an understanding of the causes, diagnosis, classification and interpretation of mental deficits. Prerequisite: Education 530 or equivalent.

Education of the Mentally Handicapped  
1 hr.

The course includes a critical evaluation of methods and materials utilized in teaching the mentally handicapped. Special attention will be given to problems of organizing special classes, developing curricula and understanding expectations of educational program for mentally handicapped children and youth. Prerequisite: Education 532 or equivalent.

Education and Therapeutic Care of Crippled Children  
1 hr.

Study of educational, psychological, and therapeutic needs of crippled children and the role of allied disciplines in meeting these needs. Prerequisite: Education of Exceptional Children 530 or consent of instructor.

Psychopathology of Childhood  
2 hrs.

A comprehensive study of the causes, manifestations, treatment and prognoses of psychiatric conditions in children suffering from neuroses, psychoses, schizophrenia, behavior disturbances, psychopathic personality disorders, organic malfunctioning, sexual deviations, etc. The learning difficulties and educational problems presented by emotionally disturbed children. Terminology and concepts needed for an understanding of mental illness and for effective communication with members of related psychiatric professionals.

Education of Emotionally Disturbed Children  
1 hr.

Taken concurrently with directed teaching in this field, this course provides group and individual guidance regarding problems encountered in teaching the emotionally disturbed. Methods of teaching, evaluation, cooperation with other agencies and professions, staff diagnostic conferences, and inter-disciplinary teamwork are among the areas covered. Resource persons include psychiatrists, psychologists, social workers, etc.
630 Clinical Study of Exceptional Children 2 hrs.
This course is intended to illustrate methods of diagnosing and treating problems of exceptional children. Students make observations and interpretations of the children and carry on remedial work with them. The contributions of other professions will be incorporated.

632 Problems in Education of the Mentally Handicapped 2 hrs.
Problems in education of mentally handicapped children including educability; philosophy of education of the mentally handicapped; organization of programs; and functions of institutions.

634 Theory and Practice in the Education of Perceptually Handicapped Children 4 hrs.
This course explores the biological, psychological, and educational problems of children who exhibit specific characteristics associated with brain injury and perceptual disturbances. The underlying theoretical principles of perceptual and conceptual learning are presented. Educational procedures are discussed and various methodologies are examined. Children with perceptual handicaps are studied, and the students learn to prepare appropriate teaching devices.

635 Counseling Parents of Exceptional Children 3 hrs.
This course explores the dynamics of parental reactions to their handicapped children. Techniques of dealing with stress situations in the home, in the school, and in the community are developed. The students are given opportunities of working with parents of exceptional children and helping them in coping with the problems they face.

636 Seminar in Special Education 2 hrs.
This course is designed for experienced teachers to examine in depth selected social, emotional, and educational problems of the children with whom they work and the multiple approaches utilized in meeting their needs.

637 Current Research in Special Education 2 hrs.
This course explores recent researches in various areas of special education. The studies are examined with regard to their validity, significance, and their implications for the education of exceptional children.

640 Organization and Administration of Special Classes and Services for Exceptional Children 2 hrs.
Principles and practices of organization and administration of special programs at state, county, and local levels will be considered, including legal aspects of state aid.

674 Directed Teaching, Special Education 3-6 hrs.
This course is a requisite for graduate students who are preparing to teach in special education. The course is preferably taken after directed teaching has been completed in a regular classroom.
School Services

Boles, Head; Professors Bryan, Manske, McCuskey, Misner, Strolle, Viall and Weaver; Associate Professors Betz, Blasch, Davenport, Engle, and Lamper; Assistant Professors Kaarlela, Mazer, and Suterko; Instructors Crawford, Murphy, and Widerberg.

EDUCATIONAL LEADERSHIP

Open to Graduates Only

605 The Process of Curriculum Development 2 hrs.

This course, designed for instructional leaders, will deal with forces causing and inhibiting curricular change, techniques of organizing and supporting curriculum improvement, perceptions of individuals and groups in relation to change, and communication with professional and lay groups involved. Prerequisite: Education 602 or consent of instructor.

607 The American Educational Scene 2 hrs.

A study of the total impact of education in the United States with reference not only to school programs, kindergarten through college, but also to educational programs in business, industry, government and other non-school agencies. This course is a prerequisite to the internship in non-school educational agencies required of all doctoral candidates in administration.

613 Elementary School Administration and Supervision 3 hrs.

A study of theoretical and practical problems of elementary school administration and supervision including organization of the school program, parent and community relationships, personnel problems and leadership in instructional improvement. Prerequisite: 660.

623 Supervision of Instruction 3 hrs.

The improvement of learning for all those who take part in educational enterprises will be the center of this course. Basic principles will be developed from the practical problems of coordination and stimulation for the planning of improved learning. The psychological and cultural matrix in which supervisory activities take place will be considered.

624 Secondary School Administration and Supervision 3 hrs.

This course is designed for all those interested in educational leadership at the secondary level. Basic principles of both administration and supervision will be developed and the interrelationship between the two carefully studied. Prerequisite: 660.

653 Principles of Community School Organization 2 hrs.

The history and philosophy of the community school as a special instrument; its program, and organizational problems related to the staff, plant, and community.
657 Community School Administration 2 hrs.
Principles of administration relating directly to the community school program. Emphasis on the task, the personnel, and the dynamic community setting.

660 Principles of Educational Leadership 3 hrs.
A study of the philosophy and principles of sound educational administration at all levels. Problems of school organization are considered in the light of research findings in human relations, and leadership theory. Stress is placed upon the nature of the administrative process and upon the opportunities and challenges of educational leadership. A prerequisite for other administration courses.

661 Social Interpretation 2 hrs.
Deals with community education with respect to the educational program. Considers the principles of educational interpretative service and their application in every phase of the system.

662 Seminar in Administration and Education (Flint) 4 hrs.
Only for students who are resident in Flint in the Mott Internship. All interns enrolled in all seven of the participating Michigan universities meet for two half-days per week with speakers on topics from the fields of education and administration. Most of these speakers are from the participating universities, although not all are. The general format is about 1 1/2 hrs. of lecture presentation of a selected topic, followed by a student participation period. Extensive readings are required. Permission of instructor required.

663 Seminar in Educational Administration 2-3 hrs.
This course is designed for experienced administrators to allow them to examine in depth selected problems of school administration, including the compilation and review of research in the field. Admission by permission of instructor. May be taken more than once.

664 Development of Educational Facilities 3 hrs.
Designed to help students identify the tasks to be done, the participants and their roles, and the principles involved in determining needs; in planning, constructing, furnishing, occupying and evaluating a single building project; and in planning for certain specifics (e.g., health, safety, comfort, future use, function, aesthetics and economy). Includes field trips to new facilities. Prerequisite: 660.

665 School Finance and Business Management 4 hrs.
Treats such topics as origins, status, organization and principles of business management; programming, expending, and securing funds; sources of funds; preparing, presenting, administering and evaluating the budget; administration of personnel, materials, plant, pupil services, and funds. Includes securing, handling and accounting for general, capital outlay and internal funds. Prerequisite: 660.
666 Cooperative Inter-Institutional Seminar 4 hrs.
For students from the field as well as interns resident in Flint. Restricted enrollment, subject to approval of instructor. A program designed for sixth-year or post sixth-year students who are practicing administrators. Makes use of the Flint, Michigan, public schools, in cooperation with other Michigan universities.

Resident interns meet for one two-hour session per week, except for participation in once-a-month activity which includes students from the field with professors from the participating universities. Format is lecture followed by student participation period. Professors are generally non-education (Sociology, Economics, Psychology, etc.) and credit is non-Education. Year's program designed around a central theme. Extensive reading required.

667 Administration of School Personnel 2 hrs.
Discusses policies and procedures relating to the selections, assignment, and supervision of certified and classified school personnel. Contracts, salary, schedules, working conditions and termination policies are studied.

668 School Law 2 hrs.
Focuses attention on basic legal principles, on the interpretation of school legislation, and on the legal responsibilities facing the administration, the teacher, the school board, and the parent.

669 Theory of Educational Administration 3 hrs.
A critical study of the philosophy of the administrative process in relation to the solution of practical problems. Concepts, generalizations, and theories of educational administration are developed and evaluated in light of recent research in the behavioral sciences and in management.

671 Internship and Seminar (Flint) 4 hrs.
Each person is serving an internship, consisting of actual field experience with each of several persons and divisions of the Flint Public Schools, in which he observes and works a minimum of 20 hours per week. In addition, the interns spend one-half day per week in seminar with their university representative, discussing their experiences and the problems they have encountered. Readings and a log of daily experience are required.

Designed for students interested in pursuing their own research projects in education. Examines various research methods appropriate to the study of different kinds of educational problems. Prerequisite: Sch.S. 676 or equivalent.

*Enrollment is for the Fall and Winter semesters, but participation is for the full public school year, with four hours credit for the year. May be taken only once.

96
676 Statistics and Computer Science 3 hrs.

A basic course in statistical concepts and procedures, offered primarily for those students interested in carrying on research for advanced programs. An introduction to computer science and its application to the solution of selected educational problems. Prerequisite: Teacher Education 601 or permission of instructor.

725 Research Seminar in Educational Administration 2 hrs.

Required of all doctoral candidates in the field. Review of research in selected aspects of administration, followed by individual presentation and analysis in the seminar. Prerequisite: Sch. S. 676 or equivalent.

GUIDANCE AND PERSONNEL SERVICES

555 Measurement and Evaluation in Education 3 hrs.

An introduction to principles, concepts and skills involved in the measurement and evaluation of individual learning and development, in the construction and use of tests and other measurement devices, and in the proper application of evaluating procedures to the various facets of the educational program.

580 Principles and Philosophy of Guidance 2 hrs.

(Service course for non-counseling majors)

An introductory course for elementary and secondary teachers. A thorough investigation of the democratic philosophical concepts underlying guidance service programs; a survey of the history and principles of guidance; an overview of guidance services.

581 Interpretation and Use of Tests in Guidance 2 hrs.

(Service course for non-counseling majors)

Designed to familiarize students with various psychological tests and scales that may be used in school guidance programs. Tests are taken and scored by students, and the results are interpreted and evaluated.

582 Information Service and Guidance 2 hrs.

(Service course for non-counseling majors)

Discussion of theories of occupational and educational choice stressing knowledge of sources, use, evaluation and techniques of imparting occupational and educational information including college choice, loans, fellowships, scholarships and grants in education.

583 Guidance Workshop 2 hrs.

(For counseling and non-counseling majors)

For Guidance Workshop is designed for counselors who wish to study particular guidance problems and procedures in relations to their local
guidance program. Group procedures will be demonstrated and experienced by the counselors with a view toward developing understandings of the group processes as perceived by students. Class membership limited to counselors, social agency personnel, and Hines Hospital personnel.

584 Elementary School Guidance 2 hrs.
(Required for elementary school counselors, and a service course for non-counseling majors)

Designed to give teachers, administrators and guidance workers an understanding of principles and techniques of guidance programs in elementary schools.

Open to Graduates Only

680 The Personnel Worker and His Role 4 hrs.
(For counseling majors)

A basic introductory unit encompassing a thorough investigation of philosophic concepts undergirding guidance and personnel programs, and a survey of the history and principles of such services. In addition, the student is involved in group counseling which may afford an opportunity for him to progress in self-understanding and self-evaluation. Admission only to those enrolled in the Guidance curriculum.

681 Organization and Administration of Student Personnel Services 4 hrs.
(For counseling majors)

A unit emphasizing the organization and administration of student personnel services at the local, state and national level. Competencies are developed in the use of questionnaires, school records, evaluations, autobiographies, anecdotal records, sociometrics, rating scales, case studies and conferences, and parent-teacher conferences. Students are expected to study various psychological tests and scales used in guidance and personnel services programs and to administer, score and interpret these devices. Prerequisite: Education 680.

682 Research in Guidance and Personnel Services 4 hrs.
(For counseling majors)

This course may be substituted for Education 681 if the student is not planning to become an elementary or secondary school counselor. The unit is designed to encourage independent study and research in the area of guidance and personnel services. The student will formulate, design and submit a research project to the Guidance staff member who is responsible for guiding the total experience. Prerequisites: Education 680, Education 601 and consent of adviser.

683 Theory and Laboratory Practice in Counseling 4 hrs.
(For counseling majors)

An advanced unit designed to synthesize counseling theory and counseling laboratory experiences. Learning activities, such as tape recordings, video tapes, role playing and actual counseling sessions, are provided to help make theoretical constructs concrete and practical. The
laboratory experience involves counseling contacts which expose the
candidate to various aspects of the counseling relationship. Prerequisites:
Education 680, and 681 or 682.

684 Supervised Practicum and Professional Experience 4 hrs.
(For counseling majors)
A unit designed to continue and enlarge upon the laboratory experi-
ences initiated in Education 683. In addition, there is a supervised
professional experience which can be effected at Western Michigan
University Counseling Bureau, a public school setting, or governmental
and social agency settings (e.g. Juvenile Court) which is designed to
provide the student with supervised practical experience in his major
vocational area of interest. Prerequisites: Education 680, 681, and 683.

686 Seminar in Guidance and Personnel Services 2 hrs.
A critical review of the research literature relating to guidance and
allied fields. Emphasis is placed upon the practical application of these
findings in the respective schools and agencies of the participants.

687 Group Procedures in Education 2 hrs.
An analysis of the role and function of group procedures in education
with special emphasis on the elements of group process and interaction.
Attention is given to relevant research in group procedures. Limited
experience for selected students may be provided in group counseling,
guidance, instruction and dynamics.

691 Counseling Supervision 2-4 hrs.
Designed for advanced graduate students who plan to assume leader-
ship responsibilities in the continuing education of counselors. Includes
didactic discussions of the elements of counseling supervision, and practical
experience in counselor education.

695 Student Personnel Services in Higher Education 2 hrs.
History of growth and administration of student personnel services
in community colleges, four-year colleges and universities. Recognition
is given to needs of students and to basic objectives of specific student
personnel services including selection and admission of students, orienta-
tion, housing, counseling, vocational choice, health, religion, student finan-
cial aid, foreign students, extracurricular, student government and disci-
pline. Opportunity to visit and evaluate college personnel programs
will be provided.

BLIND REHABILITATION

590 Physiology and Function of the Eye 2 hrs.
The anatomy, structure and function of the eye. Various eye diseases
and malfunctions are stressed. The student is given an opportunity to
observe all types of eye conditions, eye prosthesis and low visual aids.
591 Braille and Other Communication Methods
Acquaints the student with the basic rudiments of Braille reading and writing. Familiarization with other means of communication used by the blind.

592 Education of the Blind and Partially Sighted
An overview of the education of visually handicapped child. An introduction to the literature, history, principles, practices and problems in the field, including curricular and methodological adaptations of various educational programs.

593 Methods and Techniques of Teaching Braille and Other Areas of Communications
Provides students with the ability to teach areas of communication essential to the blind adult, such as: social communication, use of Braille, typing, script writing, electronic devices and other media. Opportunity for supervised practical application of methods will be afforded to the student.

594 Principles of Orientation and Mobility for the Blind
An examination of the fundamental principles underlying spatial and geographical orientation and mobility for the blind.

595 Introduction to Methods of Independent Mobility for the Blind
Techniques are acquired under conditions simulating blindness. Emphasis is placed on the use of the remaining senses, common objects, the muscles and the skeleton in activities of daily living.

596 Practicum in Orientation and Mobility
Orientation and mobility techniques and the proper methods of incorporating them into a person's method of travel. Guided observation and practice with blinded individuals ranging in age from the prekindergarten through the aged in various environments, such as the school, residence, community, and work situations.

597 Development of Services to the Blind
This introductory course is designed to acquaint the student with the development, scope, and present-day status of various types of services offered to blind people.

638 Teaching the Adult Blind
Teaching and learning as they are affected by blindness. Emphasis is placed on the skills and techniques required in teaching independent living to the blind adult. Opportunity for individual practical application of methods is afforded the students.

692 The Dynamics of Blindness and Rehabilitation
The development of the status of the blind and their integration into a sighted society. The relationship of the emotional and social correlates
of blindness to the development of the blind individual as a contributing member of society.

693 Counseling of the Blind (Hines V. A. Hospital) 2 hrs.
Acquaints the intern with techniques and procedures used in testing and counseling blind individuals.

696 Internship in Orientation and Mobility 8 hrs.
The intern, under close supervision of a Master Therapist, instructs blinded children and adults in all phases of orientation and mobility. The intern is afforded the opportunity to work with all levels of students in various environments. He also aids the Master Orienter in working with multi-handicapped blind individuals.

Physical Education for Men

Gary, Head: Associate Director of Athletics Gill; Professors Dales, Hoy and Maher;
Associate Professors Doolittle, Means and Ray

Open to Graduates and Upperclassmen

561 Problems in Interscholastic and Intercollegiate Athletics 2 hrs.
Relationship of athletics to education is considered. Problems in the organization of an athletic program including eligibility, finance, liability, transportation, safety, facilities and equipment will be discussed.

Open to Graduates Only

630 Advanced Techniques in the Coaching of Football 1 hr.
Considers problems in the coaching of fundamentals, the organization of practice periods and offensive and defensive strategy. Prerequisite: Either coaching experience or completion of an undergraduate course in the sport concerned.

631 Advanced Techniques in the Coaching of Basketball 1 hr.
The same as 630.

632 Advanced Techniques in the Coaching of Baseball 1 hr.
The same as 630.

633 Advanced Techniques in the Coaching of Track 1 hr.
The same as 630.

634 Advanced Techniques in the Coaching of Minor Sports 2 hrs.
Problems and coaching techniques in minor sports such as wrestling, tennis and golf. Rules and regulations governing meets and play are discussed. Actual participation in the activities is required. Either
coaching experience or completion of an undergraduate major or minor in the field of Physical Education is a prerequisite.

650 Tests and Measurements in Physical Education 2 hrs.

Acquaints students with the theory, selection, construction, administration and interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation and construction of tests.

660 Current Studies in the Administration of Physical Education 2 hrs.

For administrative officers as well as for teachers and directors of physical education. Includes a study of representative programs of physical education and a discussion of standards for evaluating such programs.

662 Curriculum Building in Physical Education 2 hrs.

A course in the development of a practical progressive physical education program for the elementary schools and for secondary school boys. A review of children's characteristics, particularly those concerned with physical education, will be used as a basis for thorough analysis of the development of the fundamental and basic skills at the various age levels.

670 Community Recreation 2 hrs.

Problems in community recreation. The essential elements pertaining to leadership, areas, facilities, programs, activities and methods of organization and administration are considered. A study is made of outstanding programs in operation. Recreation material is surveyed.

671 Camp Administration 2 hrs.

The organization and administration of camps and their program requirements and standards. Consideration is given to philosophy and objectives, personal skills in camp activities and methods of teaching them. Visits to camps are made and out-of-door activities are experienced.

672 Methods and Materials in Recreation 2 hrs.

Best methods and materials for the teaching and organization of recreation activities. Activities used in recreation will be presented. Opportunities for organization and actual participation and leadership will be given. This course is open to all graduate students.
Physical Education for Women

Roell, Head; Professor Large; Associate Professor Hetherington

Open to Graduates and Upperclassmen

514 Methods and Materials in Health Education 2 hrs.
Lectures and demonstrations with emphasis on the effective health supervision of school children, the principles and practices of health teaching in the various grades, and the interrelation of this teaching with that of other subjects in the curriculum. Prerequisite: 353, 354 or consent of instructor.

515 Dance History and Philosophy 4 hrs.
A study of the history and philosophy of dance from primitive man to modern man. Emphasis upon contemporary thought and its effect upon man's expression through dance.

541 Methods in Physical Education 2 hrs.
Fundamental principles underlying the selection of subject matter and the techniques of teaching elementary and secondary school physical education.

545 Philosophies of Physical Education 2 hrs.
A study of the ideas and concepts of various philosophical schools as they apply to physical education.

562 Administration and Organization of Physical Education 2 hrs.
Discusses administrative procedures and problems connected with physical education programs, including scheduling, facilities, personnel problems and public relations.

Open to Graduates Only

610 Rhythms in Elementary Education 2 hrs.
A study of the rhythmic movement needs of the elementary school child, including: suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play; folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample lesson plans and up-to-date reference sources. The course will consist of lecture and activity periods.

611 Physical Education for the Elementary Teacher 2 hrs.
A study of the developmental needs of the child in terms of physical activity; the role of physical education in childhood education; the responsibility of the classroom teacher in this area; demonstrations and practice in teaching activities.
661  Problems and Trends in Physical Education  2 hrs.

Deals with modern trends and with instructional and supervisory problems involved in conducting an effective program of physical education. Critical appraisal of present practices.

662  Curriculum Building in Physical Education  2 hrs.

A course in the development of a practical progressive physical education program for the elementary and secondary schools. A review of children's characteristics, particularly those concerned with physical education, will be used as a basis for thorough analysis of the development of the fundamental and basic skills at the various age levels.
School of
Graduate Studies

GEORGE G. MALLINSON,
Dean

LEO C. STINE,
Assistant Dean

Departments:
Librarianship
Thesis, Independent Research
Professional Field Experience
Graduate Studies

Open to Graduates Only

700 Thesis 6 hrs.

Candidates for the Master of Arts degree may elect to write a thesis in their field of specialization under the supervision of one or more faculty advisers.

A student may elect this course in units of from two to six hours. The election should not be made in more than two units and must be made within a calendar year. Application forms must be submitted at the time of election of the thesis.

710 Independent Research 2 hrs.

Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the graduate faculty. It may be elected in any department or division with permission of the Dean of the School of Graduate Studies, the student's graduate adviser and the faculty member under whom the student desires to work. Applications must be submitted prior to the election of the course.

711 Independent Research 2 hrs.

A continuation of Graduate Studies 710. May be elected in any department or division with permission of the student's graduate adviser, Dean of the School of Graduate Studies, and the faculty member under whom the student desires to work. Prerequisite: Acceptance for Candidacy for the Master's Degree, and completion of Graduate Studies 710 with superior accomplishment. Application forms may be obtained at the Graduate Office and must be submitted prior to the election of the course.

712 Professional Field Experience 2-6 hrs.

Designed for superior graduate students who wish to pursue internships or apprenticeships in off-campus activities in industries or institutions. May be elected in any department or division with permission of the student's graduate adviser, a faculty sponsor and the Coordinator of Professional Field Experiences. Prerequisite: An outline of the purposes of the student's internship or apprenticeship. Application forms and information about established programs may be obtained at the Graduate Office and must be submitted prior to the election of the course.

715 Seminar in College Teaching 4 hrs.

Designed for students who are studying in one of the Educational Specialist programs. The student is expected to work with a member of the faculty of his major department or unit in a classroom situation for a semester and to attend eight scheduled discussions arranged for all students in the Seminar. These discussions will emphasize important topics related to college teaching.
Specialist Project 4 or 6 hrs.

Designed for those units offering the Specialist degree. The nature of the study, project or paper will vary from one program to another. After receiving unit approval, project reports or papers must be prepared for binding and submitted to the School of Graduate Studies for acceptance after which the original and five copies are to be bound at the student's expense.

Doctoral Dissertation 15 hrs.

The doctoral dissertation must reflect a creative effort on the part of the student in using the skills of inquiry appropriate for his discipline. The format of the dissertation must conform to that approved by the Graduate Studies Council. The acceptance of the dissertation requires unanimous approval of the dissertation review committee and acceptance by the School of Graduate Studies. The original copy after acceptance will be used for microfilming by University Microfilm, Inc. at the student's expense. The student will retain the rights for further publication.

Doctoral Research Seminar 2-6 hrs.

Units offering doctoral programs may use this number to designate their research seminars. Such seminars may be taken more than once by the student.

Librarianship

Lowrie, Head; Associate Professor Grotzinger

Introduction to Computer I 1 hr.

Historical Background. Flow charts and concepts of programming, including use of an Automatic Programming System with application to selected problems to be run on the IBM 1620. Prerequisite: 1½ years of high school algebra or Math 100.

Selection of Books and Related Materials 3 hrs.


Reference Service 3 hrs.

Study and evaluation of basic reference and bibliographic sources. Critical examination of the publications of governmental agencies, societies and institutions especially as reference sources. Attention given to organization and methods of reference services in the library.
516 Elementary School Library Materials 3 hrs.

Problems in the selection and evaluation of books, periodicals, films, recordings and other materials for children with special emphasis on the content areas in the elementary school curriculum. Methods of stimulating interest in reading with attention to the retarded as well as to the gifted child. For teachers, parents, librarians and others who work with children. Prerequisite: 282 Children's Literature or the equivalent.

520 Field Assignment and Seminar 2 hrs.

An assignment in selected cooperating libraries for the purpose of giving the student experience in the organizational and administrative activities in specific types of libraries as basis for understanding their function and the principles underlying policy. The assignment may precede the opening of college or may be carried on during the term. Laboratory period for discussion of problems is held throughout the term. Term project also required of graduate students enrolled.

530 Introduction to Classification and Cataloging 4 hrs.

Introduction to the principles of cataloging and classifying the book collection. Includes study and practice in making the dictionary catalog and in classifying according to the Dewey Decimal Classification scheme. Students are taught to use the unit card system and are given practice in adapting Library of Congress and Wilson printed catalog cards, in assigning subject headings and in cataloging non-book materials.

531 Technical Processes: Instructional Materials Centers 4 hrs.

An introductory course in classification and cataloging in which emphasis is placed on processing materials for the instructional materials center. Includes processing of books and other printed matter and audio-visual materials. Includes also principles of application of the Dewey Decimal Classification system, the assignment of subject headings, adaptation of printed catalog cards and introduces various methods of processing audio-visual materials both for individual schools and centralized processing for systems. Includes laboratory experiences.

542 Reading Interests of Young Adults 3 hrs.

Study of the fields of literature suited to the interests of young people. Students are given opportunity through wide reading to develop principles and standards for the selection of the book collection. Includes an introduction of methods of stimulating broader reading interests and of conducting group book discussions with young people. Open to students in the Education Department and to others who expect to work with youth.

546 Storytelling 3 hrs.

Underlying principles of the art of storytelling: techniques, content and sources of materials. Practice in telling stories before groups

*Starred courses are open to students from other departments.
of children is provided. Planning the story hour program for various ages as a means of developing appreciation of literature and stimulating an interest in reading.

598 Readings in Librarianship 1-3 hrs.
Offer a program for the advanced student for independent study in his special area of interest; arranged in consultation with a graduate adviser.

Open to Graduates Only

600 Foundations of Librarianship 3 hrs.
Gives the student professional background through study of the historical development of the library, European and American; the function of the modern library and its contribution to society; current trends in librarianship and current library literature.

602 History of Books and Printing 3 hrs.
Study of the development of the book from the earliest period to modern times. Considers the appraisal of the physical book as well as its relationship to social and cultural developments. Includes history of the alphabet, early writing materials, manuscripts, invention and spread of printing and evolution of book production.

612 Subject Bibliography: The Humanities and Social Sciences 3 hrs.
A study and evaluation of the bibliographical sources in the social sciences and the humanities. Each student will be expected to compile a bibliography on a topic of his choice. Prerequisite: an introductory course in Reference. 612 need not precede 613.

613 Subject Bibliography: The Sciences 3 hrs.
A study and evaluation of the bibliographical sources in the sciences including the technical fields. Each student will be expected to compile a bibliography on a topic of his choice. Prerequisite: an introductory course in Reference. 612 need not precede 613.

614 Government Publications 3 hrs.
Study of city, state and federal documents and those of selected international agencies such as the United Nations. Problems of acquisition, organization and use of such collections in various types of libraries. Prerequisite: 512 Reference Service or equivalent.

616 Curriculum Enrichment Materials 3 hrs.
Study of the sources for selection of teaching materials with emphasis on the content areas in the secondary school curriculum. Includes evaluation of books, pamphlets, periodicals, map and other audiovisual materials. Methods of instruction in the use of such materials are also studied and students are expected to complete a term project. Open to teachers and librarians.

*Starred courses are open to students from other departments.
617 Reading Guidance for Children 3 hrs.

A study of the development of children's literature from approximately the 8th century in England and the Colonial period in the United States to the present time. Includes principles and techniques in guidance of children's reading interests; establishment of policies for selection of books especially in building the collections of public library children's departments.

618 Libraries and Multi-Sensory Communication Media 3 hrs.

A study of modern multi-sensory aids employed in communicating ideas and considered in relation to their effect on libraries. Emphasis will be placed on program development through effective use of multimedia materials. Mass communications media and new instructional methods for fulfilling the objectives of public, school and college libraries will be examined.

620 Public Library Service 3 hrs.

Origin and development, purposes and functions of the tax-supported public library (county and regional) in a democracy. Relation to other educational units in the community; distinctive problems and practices in public library organization and administration. Prerequisite: Library Organization and Administration or equivalent.

622 Library Organization and Administration 3 hrs.

Organizational and administrative factors requisite for effective library service. Consideration given to governmental and community relations, to personnel, finance, buildings and equipment. Individual projects, lectures and class discussion supplemented by observation trips.

623 College and University Library Service 3 hrs.

College and university library organization and administration, and the place of the library in academic institutions; effectiveness of library procedures; problems of acquisition, finance, buildings, equipment and the handling of special materials. Prerequisite: 622 Library Organization and Administration.

624 Library Services to Children and Youth 3 hrs.

The function and administration of public library service for children and young adults. Emphasis on coordination with school libraries and other community agencies; program development in children's and young adult departments.

625 School Library Administration 3 hrs.

The function of the library as a department in elementary and secondary schools. Includes study of special problems in personnel, in planning for space and equipment, in budgets and in the administration of centralized school library services in a school system. Standards

*Starred courses are open to students from other departments.
for evaluation of school libraries are also studied. Open to graduate students in school administration as well as to librarianship students.

627 Administration of the Instructional Materials Center 3 hrs.
Presentation of the single agency concept of multi-media instructional materials (school library plus audio-visual center) and the educational role of mass communications (language laboratory, educational television, etc.). Techniques for organization and administration, distribution and accessibility within the individual school or within a school system. Use and care of printed materials, non-book materials and equipment. Laboratory work and field trips.

628 Special Library Service 3 hrs.
Development and administration of specialized library services to organizations in such fields as science and technology, fine arts, business, etc. Lectures and field trips.

629 Library Research 3 hrs.
Evaluation of library studies and their influence on library organization, administration and services. Opportunity for investigation and research in current problems in public, college or school libraries. Prerequisite: 622 Library Organization and Administration or equivalent.

630 Advanced Classification and Cataloging 3 hrs.
A continuation of Introduction to Classification and Cataloging. Attention is given to comparison of classification systems; to cataloging of special types of materials including audio-visual materials and to methods of organizing centralized cataloging units.

635 Information Storage and Retrieval 3 hrs.
Analyzes theories of bibliographic organization and control; surveys and evaluates methods, conventional and mechanical, for retrieval; considers trends and developments relating to library services. Prerequisite: 530 and 622 or equivalent.

641 Adult Reading Interests 3 hrs.
Evaluation of findings of reading studies and their implications for library service; an understanding of reading habits, abilities and needs of adults. Study of the library as an adult education agency with an introduction to leadership training and adult education techniques.

650 Advanced Seminar in Librarianship 2-4 hrs.
Analysis and study of specific problems in contemporary library practice. Lectures, field trips and resource consultants (offered irregularly).
School of Liberal Arts and Sciences

GERALD OSBORN, Dean
CORNELUIS LOEW, Associate Dean

Graduate Offerings:
Art
Biology
Chemistry
Economics
English
Geography
Geology
History
Languages
Mathematics
Music
Philosophy
Physics
Political Science
Psychology
Science Division
Social Science Division
Sociology and Anthropology
Speech
Speech Pathology and Audiology
School of Liberal Arts and Sciences

The School of Liberal Arts and Sciences includes the departments of Art, Basic Studies, Biology, Chemistry, Economics, English, Geography, Geology, History, Languages, Mathematics, Music, Philosophy and Religion, Physics, Political Science, Psychology, Sociology and Anthropology, Speech, and Speech Pathology.

The School of Liberal Arts and Sciences offers a variety of subjects that familiarize the graduate student with the world of ideas, and deepen his understanding of the cultural heritage. The programs are designed to train the student to think objectively, critically, and creatively.

Graduate programs are offered in Biology, Chemistry, Economics, English, Geography and Geology, History, Languages, Mathematics, Medieval Studies, Philosophy, Physics, Political Science, Psychology, Sociology and Anthropology, and International and Area Studies.

The School of Liberal Arts and Sciences cooperates with the School of Education in offering the following teacher education programs: Teaching of Art, Teaching of Literature and Language, Teaching of Music, Teaching of Science and Mathematics, Teaching of Social Science, Teaching of Speech Correction and Teaching of General Speech.

Liberal Arts

503 Foreign Studies Seminar

Foreign Studies Seminars in the sciences organized and conducted by The School of Liberal Arts and Sciences for exceptionally talented undergraduate or graduate students: Students completing such a seminar may receive credit in the departments of Psychology, Geography, Geology, Biology, Physics or Chemistry if approved by the head of the department prior to registration for the seminar.

504 Foreign Studies Seminar

Seminars in the Social Sciences: Students who complete such a seminar may receive credit in the departments of Economics, Geography, History, Political Science or Sociology if the credit is approved by the head of the department prior to registering for the seminar.

505 Foreign Studies Seminar

Seminars in the Humanities: Students completing such a seminar may receive credit in the departments of Philosophy and Religion, Languages, English, Art, Music or Speech if the credit is approved by the head of the department prior to registering for the seminar.
Art

Hefner, Head; Associate Professor S. Phillips

510 Life Drawing 3 hrs.
Continuation of Art 310 with emphasis on the final drawing as a complete and coherent artistic statement. Prerequisites: Basic Group I, and 310.

520 History of Art 3 hrs.
The study of American Art beginning with the Pre-Columbian period. Prerequisites: Art 220, 221.

525 Seminar in Art 1 hr.
A seminar primarily in Art Philosophy and History with opportunity for research and debate.

530 Advanced Ceramics 3 hrs.
Advanced work in Ceramics including glaze calculations and experimentation. Prerequisites: Basic Group I, and 232, 330.

531 Sculpture 3 hrs.
Advanced work in Sculpture. Prerequisites: Basic Group I, 310, 331.

534 Textiles 3 hrs.
Continuation of 344 with advanced work in textile design. Prerequisites: Basic Group I, and 234, 334.

538 Jewelry 3 hrs.
Continuation of 338: advanced work in jewelry processes. Prerequisites: Basic Group I, and 236, 338.

540 Oil Painting 3 hrs.
Advanced oil painting. Prerequisites: Basic Group I, and 210, 310, 240, 340.

541 Printmaking 3 hrs.
A continuation of printmaking, 341. Prerequisites: Basic Group I, and 210, 310, 242, 510, 341.

542 Watercolor 3 hrs.
Continuation of advanced watercolor techniques with emphasis on experimentation. Prerequisites: Basic Group I, and 240, 342.

545 Graphic Design 3 hrs.
A survey of visual communication from two dimensional to three dimensional forms. (e.g., editorial design, packaging, point of sale, exhibition design.) Prerequisites: Basic Group I, and 245, 345.

550 Art Supervision (Elementary) 2 hrs.
Designed to prepare elementary art education majors to realistically meet such responsibilities as working with elementary classroom
teachers, selecting, organizing and teaching art activities at each stage of development.

551 Art Supervision (Secondary) 2 hrs.
Designed to prepare art education majors to understand the problems of the secondary art program. Organizing and teaching, budgeting, and other problems of secondary art education programs.

Open to Graduates Only

642 Studio in Art 4 hrs.
Advanced problems in art according to individual need. (Sculpture, ceramics, textiles, painting, etc.) Scheduled by arrangement.

643 Studio in Art 2 hrs.
Continuation of 642. Scheduled by arrangement.

650 Workshop in Art for Elementary Teachers 2 hrs.
This course is planned for the elementary classroom teacher who has little or no training in art education. It includes an introduction to the philosophy of art education, and an examination of the stages of development of the child in creative and mental growth, as well as activities designed for each level.

655 Workshop in Art for Secondary Teachers 2 hrs.
A course designed to help the secondary teacher with no professional training in art or art education to better understand the child at this level and to help him in his creative and mental growth through art activities.

Biology

Goodnight, Head; Professors Bartoo, Hinds, Steen, VanderBeek, Van Deventer, Wiseman; Associate Professors Brewer, Holt, Lawrence, Schultz, and Wood; Assistant Professors Engemann, Hurst, Noecker, Pippen, Vial; Instructor, Fowler.

Open to Graduates and Upperclassmen

500 Selected Experiences in Biology 2 hrs.
Designed for pre-service or in-service elementary and secondary teachers who need to develop their background in biology. Problems to be studied will be selected under the guidance of the instructor. Laboratory work will consist of independent studies of living plants and animals. These will be done outside of class time, utilizing procedures outlined by the instructor. Prerequisite: consent of instructor.
502 Human Ecology 2 hrs.
A study of the man-dominated biotic community of civilization and its interrelationships. Lectures, assigned readings, group and individual field work. Prerequisite: at least a minor in biology.

508 Recent Advances in Biology 2 hrs.
Recent research findings at the frontiers of biology as reported in periodicals, symposia and biological meetings. Prerequisite: at least 12 hours of biology.

511 Physiology of Reproduction 2 hrs.
A comparative study of the reproductive physiology of domestic animals, laboratory animals and man. Prerequisites: 217 or 317 and a working knowledge of biochemistry.

512 Health Problems 2 hrs.
A course for students with special interest in the medical and public health areas. The pathology, treatment and control of the major causes of mortality and ill health are presented; broad background in biology and chemistry desirable.

515 Alcohol Problems 2 hrs.
An objective study of a major social problem, examined critically with regard to its physiological, psychological, legal, cultural, and sociological aspects. Prerequisite: at least a minor in biology or sociology, or consent of instructor.

514 Advanced Microbiology 4 hrs.
This course deals with pathogenic micro-organisms, infectious diseases, diagnostic tests and principles of immunology. Prerequisite: 412 or equivalent.

517 Cellular Physiology 3 hrs.
Concerned with the details of structure and functioning of cells, both animal and plant. The current status of major problems in the field is considered. Laboratory work consists of individual projects. Prerequisite: 317 or 326 or consent of instructor.

518 Endocrinology 3 hrs.
The glands of internal secretion, the active principles produced by each, and their effects on bodily metabolism. Prerequisite: 217 or 317 or consent of instructor.

519 Comparative Animal Physiology 4 hrs.
A study of the basic physiological processes as they occur in various groups of animals. Prerequisite: 317 or equivalent.

521 Phycology 3 hrs.
Studies in the classification, structure, physiology, ecology and economic importance of the fresh-water algae. Prerequisite: a 200 or 300 course in botany.
522 Phytogeography 3 hrs.
A study of the geographical distribution of plants based on physical and ecological factors. Prerequisite: 321 or equivalent.

523 Paleobotany 3 hrs.
A study of the characteristics, historical and evolutionary relationships of plants based upon the fossil record. At least two extended field trips are taken. Prerequisite: 221 or equivalent.

524 Economic Botany 3 hrs.
A study of plants useful to man for food, flavoring, drugs, clothing and building. Field trips required.

525 Biological Constituents 3 hrs.
The chemical elements present in plants and animals, as well as the synthesis, characterization and degradation products of the more important compounds. Prerequisites: 12 hours of biology, one year of chemistry.

526 Mycology 3 hrs.
Studies in the classification, structure, physiology, development and economic importance of fungi. Prerequisite: a 200 or 300 course in botany.

527 Advanced Plant Physiology 4 hrs.
Advanced investigations into plant functions. Basic principles are examined more intensively. Advantage is taken of the discoveries and unifying principles of modern biochemistry. Prerequisites: 326 and a course in chemistry or consent of instructor.

528 Morphology of Non-vascular Plants 3 hrs.
A study of the classification, ecology and reproductive cycles of algae, fungi and bryophytes. Culture methods of growing these plants for research occupies a part of laboratory work. Prerequisite: 221 or equivalent.

529 Morphology of Vascular Plants 3 hrs.
A detailed study of the morphology, life cycles, and evolution of vascular plants. Individual research required. Prerequisite: 221 or equivalent.

530 Field Natural History 3 hrs.
The natural history of biological communities and their inhabitants with particular emphasis on areas accessible for use by public schools, e.g., school grounds, vacant lots, field borders, parks, and undeveloped areas. Primarily for teachers. Prerequisite: Biology 100 or 101 or consent of instructor.

542 Entomology 3 hrs.
A general study of insects, their structure, classification, life histories, ecological relationships, and economic importance. Prerequisite: twelve hours of biology.
513 Protozoology 4 hrs.
Field and laboratory studies of both free-living and parasitic protozoans, including taxonomy, morphology, life histories, ecology, heredity, and evolutionary development. Prerequisite: 341 or consent of instructor.

515 Ichthyology 3 hrs.
The biology of fishes with special reference to systematics, adaptations and ecology or fresh-water and marine forms. Museum and experimental methods will be employed. Field trips will emphasize study of the Great Lakes region fishes. Prerequisite: 100 or 101 or equivalent.

517 Advanced Ornithology 4 hrs.
Populations, life histories, anatomy, social behavior and environmental relationships of the birds of southwestern Michigan. Shore and marsh birds are given special attention. Individual studies, bird banding and the preparation of bird skins. Early morning field trips are scheduled. Prerequisite: 347 or consent of instructor.

518 Herpetology 3 hrs.
Biology of amphibians and reptiles with reference to systematics, adaptations and ecology. Museum and experimental methods are emphasized in the laboratory. Field work is an integral part of the course with special consideration of Michigan herpatofauna. Prerequisites: 100 and 101 or equivalent.

519 Mammalogy 3 hrs.
Biology of mammals emphasizing systematics, adaptations and ecology. Museum and experimental techniques will be employed. Field trips are an integral part of the course. Prerequisites: 100 and 101 or equivalent.

521 Parasitology 3 hrs.
A study of parasites and host-parasite relationships as illustrated by typical representatives of the principal animal groups. Special attention is given to the parasites of man. Prerequisite: At least 12 semester hours of biology.

522 Plant Ecology 3 hrs.
A consideration of the organization of vegetation and causal relationships between vegetation and environment. Prerequisites: 301 and 321 or 326 or equivalents.

523 Limnology 3 hrs.
Biological, chemical and physical aspects of lakes and streams, with emphasis on ecological relationships of invertebrate animals and lower plants. Prerequisite: 301 or equivalent.

529 Radiation Biology 3 hrs.
A study of the fundamentals of radiobiology including isotope technology, radiation measurements, radioactive decay, radiation and inter-
action in living matter, and health and safety regulations in the laboratory. Prerequisite: consent of instructor.

561 **Vertebrate Natural History** 3 hrs.

The biology of vertebrates with special reference to evolution, adaptation, behavior, and ecology. Prerequisite: Biology 100, 101, and 306 or consent of instructor.

563 **Zoogeography** 2 hrs.

A study of the geographical distribution of animals on historical and ecological principles. Prerequisites: Biology 100, 101, and 306 or consent of instructor.

570 **Microtechnique** 3 hrs.

A study of the stains and techniques used in the preparation of tissues for microscopic study. Prerequisite: four semesters of work in biology.

598 **Readings in Biology** 1-3 hrs.

Independent studies for advanced students in special areas of interest. Arranged in consultation with graduate adviser.

599 **Independent Studies in Biology** 1-4 hrs.

For advanced students who wish to carry on advanced work in special fields. Prerequisite: consent of instructor.

**Open to Graduates Only**

605 **Advanced Studies in Genetics** 4 hrs.

Special problems in genetics, including a study of the genetic systems of populations and the formation of species. Lectures include material on the nature and function of the gene, and its relation to evolution. Prerequisite: at least a minor in biology, including a course involving an understanding of basic genetics.

606 **Experimental Morphogenesis** 4 hrs.

A study of developmental anatomy in plants, with emphasis on experimental morphogenetic problems in the laboratory. Prerequisite: 529 or equivalent.

612 **Advanced Studies in Microbiology** 4 hrs.

Individual studies in various fields in microbiology. Prerequisites: 412, 512 or equivalent.

618 **Advanced Studies in Physiology** 4 hrs.

This course involves intensive study of physiology. Work may be assigned in the fields of plant physiology, animal physiology, or a combination of these. Subject matter to be determined by the interests of the group. Prerequisite: 519 or 527 or consent of instructor.
621 Taxonomy of Vascular Plants 4 hrs.

Principles of plant systematics using examples from the vascular plants. Emphasis is placed on comparative morphology, experimental techniques, systems of phylogeny, classification, and nomenclature. Prerequisite: at least a minor in biology including Systematic Botany 321 or equivalent.

651 Advanced Studies in Ecology 4 hrs.

Devoted to discussions and investigations in fields of current ecological interest. Prerequisite: at least a minor in biology, including a course in ecology.

Chemistry

Meyer, Head; Professors Illand, Knowlton and Osborn; Associate Professors Anderson, Holkeboer and Nagler; Assistant Professors Berndt, Brown, Foote, Frey, Harmon, Houser, Howell, Kanaan and Stenesh.

Open to Graduates and Upperclassmen

505 Chemical Literature 2 hrs.

An introduction to the use of the various types of chemical literature such as journals, handbooks, abstracts, monographs, government and institutional publications and patents. Problems in the course require a search of the literature in the fields of analytical, inorganic, bio, organic and physical chemistry. Prerequisite: 24 hours of Chemistry.

510 Inorganic Chemistry 3 hrs.

The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite: 24 hours of chemistry, 530.

520 Advanced Analytical Chemistry 3 hrs.

An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. Four hours of laboratory per week. Prerequisite: 531.

530 Physical Chemistry 4 hrs.

Includes studies of gases, liquids, solids, solutions, thermodynamics, molecular structure, thermo-chemistry, colloids, etc. Prerequisites: Physics 113, and Calculus 222. May not be used as credit on graduate programs in chemistry.

531 Physical Chemistry 4 hrs.

A continuation of course 530. The course includes study of surface chemistry, macromolecules, electro chemistry, homogeneous equilibria, heterogeneous equilibria, quantum theory, etc. Prerequisite: Physical
Chemistry 530. May not be used as credit on graduate programs in chemistry.

510 Food Chemistry 2 hrs.
This is a discussion and laboratory course on the chemistry of foods for such important components as carbohydrates, proteins, fats, minerals, vitamins, and food pigments. Prerequisite: 222, 361 or 363.

551 Elementary Biochemistry 3 hrs.
Elementary study of the chemistry of the body, digestion, metabolism, excretion. Prerequisite: 361, 363, or 265.

553 Elementary Biochemistry 5 hrs.
An elementary study of modern biochemistry consisting of lectures and laboratory.

554 General Biochemistry 3 hrs.
Enzymes, vitamins and hormones; electron transport; respiration and electrolyte balance; photosynthesis; selected application of physical chemistry, etc. Prerequisite: 551.

560 Qualitative Organic Analysis 3 hrs.
A course in the methods of identification of organic compounds in the pure state and in mixtures which has as secondary goals the familiarization with many organic reactions and the development of deductive reasoning in the field of organic chemistry. Prerequisite: 361 or 363, and 24 hours of chemistry.

564 Organic Preparations 2 hrs.
A course in the application of principles and techniques of handling aliphatic and aromatic compounds on a preparative scale. Typical standard procedures are assigned. Emphasis is placed on good yields as well as quality of product. Eight hours of laboratory each week. Consult instructor before enrolling. Prerequisite: 361, and consent of Head of Department.

580 History of Chemical Theory 2 hrs.
The history of chemical theory in which the evidence for the theories is critically presented. Prerequisite: 24 hours of college chemistry, or consent of Head of Department.

590 Special Problems in Chemistry 2 hrs.
Advanced students who have completed certain basic work in chemistry may select a special problem in the fields of analytical, organic, bio or physical chemistry. Prerequisite: 24 hours of chemistry and consent of Head of Department. Given on request.

591 Special Problems in Chemistry 2 hrs.
A continuation of special problem work started under 590. Given on request.
Open to Graduates Only

601 Graduate Seminar
Graduate seminar in Chemistry. Required of all candidates for the master’s degree in Chemistry. (Two semesters; 1 hr. credit)

605 Advanced Chemistry Laboratory
Methods of working under controlled atmospheres and conditions, manipulations of low boiling point substances, and unstable or reactive substances, and other procedures not generally covered in the elementary laboratory courses. These will be applied to problems in preparation and separation of compounds, determination of equilibria, rates of reactions, and measurements of physical properties.

610 Advanced Inorganic Chemistry
Covers the principles of inorganic chemistry and the chemical elements. Such topics as extranuclear structure of the atoms, periodic classification of the elements, valency and the chemical bond, complex ions and coordination compounds, acids and bases, and nonaqueous solvents are included in the study of chemical principles. The remainder of the course concerns the chemical elements and their compounds. Prerequisite: 24 hours of chemistry.

611 Advanced Inorganic Chemistry
The chemistry of the transition elements. Consideration of the electronic and magnetic states of the transition metals in their compounds; the symmetry, stability, and reaction mechanisms of coordination compounds; application of bonding theories; systematic chemistry of the transition and inner transition elements. Prerequisite: 610.

612 Topics in Inorganic
A cooperative investigation of one or more topics of major consequence to contemporary inorganic chemistry. Aspects of the topic will be developed from primary sources and presented by the students. Prerequisite: 610.

613 Current Developments in Chemistry
Five or six new developments selected from significant advances in chemistry will be considered. Course content will vary from year to year with growth of the science. Prerequisite: 16 hours in chemistry.

622 Theory of Analytical Chemistry
A course in the fundamental principles underlying chemical methods of analysis. Special emphasis is placed on equilibria, kinetics, and mechanisms of the important types of chemical reactions (acid-base, precipitation, complex formation and redox) involved in chemical analysis; on methods of separation (precipitation, electro-deposition and distillation techniques); and on the application of statistical methods of sampling, experiment design and interpretation of results. Prerequisite: 531. Three hours lecture per week.
624 Analytical Spectroscopy 3 hrs.
A comprehensive treatment of those instrumental techniques which are based upon either the emission or absorption of energy by matter. Emission spectroscopy; Raman spectroscopy; mass spectrometry; ultraviolet, visible, and infrared absorption spectroscopy; fluorimetry; and other selected topics. Lectures and laboratory. Prerequisite: 520. 2 hours lecture and 4 hours lab per week.

626 Chemical Instrumentation 3 hrs.
Discussion of the principles and characteristics of construction and design of chemical and optical instruments. Lectures and laboratory. Prerequisite: 520. One hour lecture and six hours lab per week.

630 Advanced Physical Chemistry 3 hrs.
Includes a more intensive study than was possible in Introductory Physical Chemistry of the following fields: kinetic molecular theory, statistical mechanics, thermodynamics and quantum theory. Applications will be made to equations of state, molecular diameters, reaction kinetics, dipole moments, heat capacities, spectra and their relation to molecular structure. Prerequisite: 531.

631 Colloids 2 hrs.
The fundamentals of colloid chemistry including the nature of the colloid state, adsorption, types of colloids, methods of colloid formation, properties of colloids, plastics and polymers. Prerequisite: 531.

632 Electrochemistry 2 hrs.
Includes chemical thermodynamics, conductivity of solutions, transport number, electrode potentials, electrolysis and overvoltage. Prerequisite: 531.

633 Chemical Thermodynamics 3 hrs.
Includes a review of the three laws of thermodynamics, state functions, activities, partial molal quantities, thermodynamics of solutions, equilibrium and statistical thermodynamics. Prerequisite: 630.

635 Chemical Kinetics 3 hrs.
Measurement of reaction rates, reaction rate theory, mechanisms of elementary processes, reactions in solution and on surfaces, complex reactions, application of kinetics to mechanisms, and photochemistry. Prerequisite: 630.

650 Advanced Biochemistry 3 hrs.
An advanced course in macromolecules dealing mainly with proteins and secondarily with nucleic acids. Topics covered include physical techniques for studying macromolecules such as ultracentrifugations, diffusion and viscosity; isolation and verification of protein; structure and properties of proteins and nucleic acids; protein biosynthesis; properties of enzymes and the kinetics of enzyme reactions. Prerequisite: 551.
651 Advanced Biochemistry Laboratory 3 hrs.

This course consists of two four-hour labs and one hour lecture. It is designed to acquaint the student with current techniques in research such as chromatography, electrophoresis, counter current separation, spectrophotometry, radioactive isotopes, etc. Prerequisite: 553.

652 Topics in Biochemistry 3 hrs.

Content of the course will vary depending upon student interest and availability of staff. Contemplated topics include advanced intermediary metabolism, viruses, cancer biochemistry, physical techniques, etc. Prerequisite or corequisite: 650.

660 Advanced Organic Chemistry 3 hrs.

The following topics are considered: relation between structure and reactivity of organic compounds, stereochemistry, chemistry of the hydrocarbons (particularly the alkenes) and chemistry of carbonyl compounds. Prerequisite: 361 or 363.

661 Organic Reactions 3 hrs.

An intensive survey of organic reactions with emphasis on preparative scope and utility organized about type of reaction. The following types are considered: aliphatic substitution, oxidation, reduction, condensation, etc.

662 Stereochemistry and Introduction to Organic Mechanism 3 hrs.

A consideration of shapes of molecules and the isomeric consequences. Atomic and molecular orbital interpretation of molecular shape, resonance relation of stereochemistry to substitution and alkene addition reactions will be considered. Prerequisite: 361 or 363.

663 Mechanism in Organic Chemistry 3 hrs.

A continuation of 662. Free radical, ionic and multicenter reaction types are considered. Prerequisite: 662.

Economics

Bowers, Head; Professors Carlson, Copps and Ross; Associate Professors Beinhauer, Gardner, Junker, Wend and Zelder; Assistant Professors Dhruvarajan and Sichel.

Open to Graduates and Upperclassmen

500 Managerial Economics 3 hrs.

Describes and illustrates the ways in which the tools of the economist can be useful to industrial management in its analysis of the past and present experience of the firm and, in particular, in its efforts to arrive at intelligent decisions with respect to the future. The course deals with the basic types of decisions management faces including the analysis of demand, costs, and capital requirements. Prerequisite: 200.
503 Price Theory

A basic course in economic theory with emphasis on production and income distribution theory. Prerequisite: Principles of Economics.

505 History of Economic Thought

thinkers and the influence of erroneous schools of economic thought on early times to the present. After a brief consideration of early mercantilism and the evolution of the philosophy of natural liberties special emphasis will be placed on the contributions of significant economic thinkers and the influence of erroneous schools of economic thought on national policy and economic development. Prerequisite: 200.

506 Economic Methodology

A study of the methodological underpinnings of extant economic theory. Special emphasis will be paid to the ways in which such concepts as causality, probability, deduction, induction, prediction, and proof enter into the logic discovery and the logic of confirmation. Prerequisite: 200 or consent of instructor.

507 Monetary Theory and Policy

This course would concentrate on the main elements of monetary theory and policy, having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. This course would stress American experience, but would also give considerable attention to the monetary problems and policies of other important nations. Prerequisite: 320.

508 Institutional Economics

An intensive examination of heterodox economic theory, conceived in terms of the basic social concepts of institutions and technology, and utilizing developments in modern social science for the resolution of persistent economic problems. Prerequisite: Principles of Economics.

509 Econometrics

An introductory course in analytical and quantitative methods in economics. Applied economic problems like linear programming, input-output analysis will be considered. Simple regression models and their uses in economics are also included. Prerequisites: 200, Math 122, or consent of instructor.

510 Labor Problems

An analysis of the nature and underlying causes of the problems facing the worker in modern society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic security. Prerequisite: Principles of Economics.
512 Collective Bargaining  3 hrs.

An analysis of the major problems in present-day collective bargaining including the negotiation of collective agreements, the practical aspects and the economic implications. Prerequisite: Labor Problems 510 or consent of instructor.

513 Economic Security  3 hrs.

An analysis of the problems of the individual worker and the efforts of the government to aid in the solution of these problems. It deals with unemployment, old age, benefits and medical care.

514 Labor and Government  3 hrs.

Deals with the government's role in the problem arising from labor-management relations and from labor's search for security. It covers the court's attitude toward labor organization from the rule of conspiracy through Taft-Hartley. It also includes protective legislation and the development of security legislation.

521 Federal Government Finance  3 hrs.

Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisite: 200.

525 State and Local Government Finance  3 hrs.

Practices, effects, and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and to intergovernmental fiscal relations. Prerequisite: 200.

536 Advanced Consumer Economics  3 hrs.

A study of the place of the consumer in the economic system. The relationships of personal income to price levels, and of consumer liquid assets and availability of consumer credit to total consumer demand will be analyzed. Special consideration will be given to the role of the consumer in determining the amount of national income and the stability of the economic system. Prerequisite: Principles of Economics of Economics of Consumption.

542 Business and Government  4 hrs.

A study of the regulatory policies of government and their impact on private enterprise. The course seeks to explain the need for regulation, and to provide an analysis and evaluation of the various laws from the viewpoint of encouragement, subsidization and control. Special attention will be directed to certain aspects of concentration of economic power, public ownership and nationalization programs. Prerequisite: Principles of Economics. Work in political science may be substituted in special cases by permission of the instructor.

The course is designed to study the pure theory of international trade and trade policy.

584 Comparative Economic Systems 4 hrs.

The economic institutions and conditions of capitalism, socialism, communism, fascism and the cooperative movement are critically examined as to ideology and actual operation. Prerequisite: Principles of Economics.

585 Economics of North Africa and the Near East 3 hrs.

A study of economic conditions, institutions, ideologies, policies and activities in the countries of North Africa and the Near East. The course concentrates on the examination and analysis of the foregoing problem areas of economic development in the socio-cultural and historical contexts. Prerequisite: 200 or consent.

586 The Economics of the Soviet Union and Eastern Europe 3 hrs.

A study of Soviet and East European planning practices including an examination of the development in commerce, agriculture and industry in these areas. Also trade among the several East bloc nations will be covered. Prerequisites: Economics 200, 201.

587 Studies in Asian Economics 3 hrs.

The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as basis of comparison to the other Asian economies.

588 Economic Development 3 hrs.

An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural pattern and economic reasons for lack of development and the steps necessary to promote economic progress. Special attention will be paid to evaluating the effectiveness of the United States foreign-aid program and examining the issues arising as a result of the conflict with the U.S.S.R. Prerequisite: Principles of Economics.

589 The Yugoslavian Economy 3 hrs.

A study of the type of a communist planned economy as found in Yugoslavia. Offered in the fall only.

590 Contemporary Communism—A Survey 2 hrs.

This workshop on Communism is designed to give the student an insight for the range of problems that resulted from the spread of Communism in the wake of World War II. The philosophy, economic doctrines, and government of Communism will be covered. The Workshop will be of particular value in acquainting teachers with the available materials on Communism.
Readings in Economics 1-3 hrs.
An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of department head.

Open to Graduates Only

601 Economic Problems 3 hrs.
Some contemporary economic problems in such areas as economic security, labor relations, finance matters related to public expenditures and taxation, governmental controls and the balance between freedom and order are analyzed and studied. Some previous work in economics is desirable but not mandatory.

606 Seminar in the Evolution of Economic Thought 4 hrs.
A critical study and evaluation of the various schools of economic thought with special emphasis on the ideas and theories of the leading economists in the classical, romantic, historical, socialist, neo-classical, institutional, Keynesian, and welfare economic schools. Individual research will provide the basis for class discussion. Prerequisite: A minimum of 9 credit hours including Economics 200.

609 Seminar in Economics 2 hrs.
Offers the graduate an opportunity to investigate contemporary problems in economic theory and analysis. Prerequisite: 4 hours of advanced economic theory or consent of staff.

612 Labor Union Structure and Practice 3 hrs.
An analysis of the government and operation of American labor unions with particular reference to the problems of union leadership, disciplinary procedures, membership control and the economic and social consequences of these practices.

621 Issues in Public Finance 3 hrs.
An exploration of issues in taxation, government spending, fiscal policy, and intergovernmental relations with emphasis on recent literature in those areas. Prerequisite: 200.

628 Applied Economics for Teachers 2 hrs.
Designed as a modern aid to in-service teachers and others who desire practical help in managing some of their economic affairs which are more personal than professional. Among items stressed are credit buying, savings, insurance programs, home ownership vs. renting, personal investments, taxes, wills and trust plans.

650 Industrial Structures and Competition 4 hrs.
The interest of this course centers on the areas where markets are characteristically oligopolistic. After a brief review of pure competition theory and monopolistic competition theory, those parts of extant price
theory which are most directly applicable to the industrial sector of the economy are examined. Prerequisite: 200.

662 National Income Analysis 3 hrs.
A basic course in economic theory with emphasis on modern theories of output of the economy as a whole and on the uses of these theories as guides to policy. Prerequisite: Economics 200.

680 Problems in International Trade and Finance 3 hrs.
An analytical understanding of contemporary issues in international trade and finance will be emphasized.

688 Issues in Economic Development 3 hrs.
An intensive examination of a number of selected key topics in development economics, centering on issues of crucial importance to developing nations. Examples of such issues are Primary Products, Capital Formation, Technological Change, Inflation, Debt Servicing, Population, etc. Prerequisite: 200.

English

Sadler, Chairman; Professors Callan, Denenfeld, Holaday, Limpus, Macroe, Malmstrom, Miller, Nelson, Rogers, and Woods; Associate Professors Bahlke, Combs, Davis, Galligan, R. Goldfarb, McNally, Palmatier, Phillips, Rowe, and Shafer; Assistant Professors Carlson, C. Goldfarb, and Stroupe.

Open to Graduates and Upperclassmen

519 Studies of Non-Western Literatures in Translation 4 hrs.
Studies of significant forms in Chinese, Indian, and other non-western literatures and of their relation to the values and patterns of a particular society.

522 Movements in American Literature 4 hrs.
Study of a movement or movements in American literature, such as romanticism, realism, naturalism. Prerequisite: two literature courses.

530 Medieval Literature 4 hrs.
Readings in medieval drama, lyric and narrative poetry, and romances as an introduction to Dante's Divine Comedy. All in translation. Prerequisite: two literature courses.

531 Studies in the Age of Chaucer 4 hrs.
Readings in the major works of Chaucer and other representative medieval authors. Prerequisite: two literature courses.

534 Neo-Classical Literature 4 hrs.
English literature 1660-1730 with major emphasis on Dryden, Pope, and Swift. Prerequisite: two literature courses.
535 Eighteenth-Century Literature 4 hrs.
Readings in Johnson, Boswell, Gray, Fielding, Sterne, and Smollett. Prerequisite: two literature courses.

536 Romantic Literature 4 hrs.
Readings in poetry and criticism, with emphasis on Blake, Burns, Wordsworth, Coleridge, Scott, Byron, Shelley, Keats. Prerequisite: two literature courses.

537 Victorian Literature 4 hrs.
Readings emphasizing Carlyle, Mill, Dickens, Thackeray, Tennyson, Browning, and Arnold. Prerequisite: two literature courses.

555 Studies in the Art and Thought of Major Writers 4 hrs.
Study of the works of a major writer. Prerequisite: two literature courses.

566 Creative Writing Roundtable 4 hrs.
An advanced course in the writing of poetry, fiction and/or drama, with class criticism of each student's writing. The course may be taken again for credit.

570 Introduction to Linguistics 4 hrs.
An introduction to the history of linguistics and a survey of the principles and practices in the major schools (e.g. structural), fields (e.g. historical), and areas (e.g. dialectology), of modern linguistic study.

574 Linguistics for Teachers 4 hrs.
An application of the concepts and procedures of structural and transformational linguistics to the teaching of language, literature and composition in the English curriculum. Prerequisite: English 270 or English 570.

598 Readings in English 2-4 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each student. Approval of English adviser required. May be elected more than once.

598 Open to Graduates Only

622 Studies in American Literature 3 hrs.
The advanced study of selected aspects of American literature. Prerequisite: one course in American literature or the consent of the graduate English adviser.

640 Poetics 3 hrs.
Systematic analysis of a number of poems with regard to tone, statement, imagery, prosody, and other formal elements. Prerequisite: a minor in English.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>641</td>
<td>Studies in Modern Poetry</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>An intensive study of the writings of several modern poets. Prerequisite: a minor in English.</td>
<td></td>
</tr>
<tr>
<td>642</td>
<td>Studies in Drama</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>Selected areas of drama from classical times to the present. Prerequisite: a minor in English.</td>
<td></td>
</tr>
<tr>
<td>644</td>
<td>The Novel: Form and Technique</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>An examination of the significant forms and techniques employed in the novel from its prototypes through its more recent development. Prerequisite: a minor in English.</td>
<td></td>
</tr>
<tr>
<td>645</td>
<td>Studies in the Modern Novel</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>An intensive study of the works of some important novelists of the twentieth century. Prerequisite: a minor in English.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selected tragedies of Shakespeare. Prerequisite: an undergraduate course in Shakespeare.</td>
<td></td>
</tr>
<tr>
<td>653</td>
<td>Studies in Shakespeare: Comedy</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>Selected comedies of Shakespeare. Prerequisite: an undergraduate course in Shakespeare.</td>
<td></td>
</tr>
<tr>
<td>654</td>
<td>Milton</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>An intensive study of Milton’s major poems, correlated with significant modern criticism. Prerequisite: a minor in English.</td>
<td></td>
</tr>
<tr>
<td>660</td>
<td>Methods of Research in English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>Practice in the efficient use of library resources for studies in literature and language. Prerequisite: permission of graduate English adviser.</td>
<td></td>
</tr>
<tr>
<td>661</td>
<td>Seminar in English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>Study of a problem involving an author, a period, or a genre. Prerequisite: 660 Methods of Research in English.</td>
<td></td>
</tr>
<tr>
<td>668</td>
<td>Literary Criticism</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>A study of the major critical treatises. Prerequisite: a minor in English.</td>
<td></td>
</tr>
<tr>
<td>672</td>
<td>Phonological Analysis</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>An examination of theories of phonological structure and methods of phonetic and phonemic analysis correlated with field work in the analysis and description of phonological structures. Prerequisite: 270 or 570.</td>
<td></td>
</tr>
<tr>
<td>674</td>
<td>Grammatical Analysis</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>An examination of ancient, medieval, and modern theories of morphology and syntax, with emphasis on conflicts and correlations among current systems of grammatical analysis. Prerequisite: 270 or 570.</td>
<td></td>
</tr>
</tbody>
</table>
676 Early English 3 hrs.
An examination of selected Old English (with translation), Middle English, and Early Modern English texts. Prerequisite: 270 or 570.

680 Teaching of High School English 3 hrs.
A study of recent theories and methods of teaching literature and language in the high school. For experienced teachers of English.

681 Teaching of Freshman English 3 hrs.
A consideration of the philosophies underlying various courses in freshman English and of methods suited to teaching the communication skills.

GEOGRAPHY

Jackman, Chairman; Professors Horst, Kirchherr and Stout; Associate Professor Heller, Moore and Raup; Assistant Professors Eichenlaub, Erhart, Morris and Wheeler.

COURSES IN SYSTEMATIC GEOGRAPHY

Open to Graduates and Upperclassmen

510 Political Geography 3 hrs.
This course introduces the principles and concepts of political geography as they interact in the evolution of the modern political state. Geopolitical concepts of boundaries and frontiers, the "organic" State, Geopolitik, and theories of global relationships are treated in some detail. Prerequisite: Geography 105 or consent.

511 Geographic Foundations of National Power 3 hrs.
In contrast to the principles and concepts treated in Geography 540, this course takes up the applications of political geography to world power relationships; analyses the components of national power in their physical and cultural relationships; concepts of autarky, national determinism, possibilism, and supra-nationalism will be studied. Prerequisite: Geography 105 or consent.

512 Historical Geography of North America 3 hrs.
A study of the geographic and related factors as they combined to influence routes of exploration, trade, settlement and travel in North America. The evolution of patterns of settlement which resulted from the interaction of physical and cultural geographic conditions are studied in relation to the development of the continent for human use. Prerequisite: Geography 105.

513 Cultural Geography 3 hrs.
A consideration of the major aspects of the relationship between the physical environment and human occupation will be followed by more detailed study of the types of livelihood in their geographic settings,
population geography, and the urban environment. The place of origin and patterns of distribution of various cultural systems will be traced. Each semester, certain of these relationships will be singled out for intensive study. Prerequisite: Geography 105 or consent.

544 Agricultural Geography 3 hrs.
A course designed to acquaint the student with world patterns of farming activity, and food distribution. The first part of the course is concerned with the description and analysis of: (a) the distribution of major world crops and domestic animals, and (b) the most common combinations of crops and livestock on farm units. The second part of the course deals with the spatial organization of agriculture in certain selected areas. Prerequisite: Geography 244 or consent.

546 Manufacturing and Transportation Geography 3 hrs.
The study of the world's dominant manufacturing types, individually and as they occur in association with one another and of the transportation systems that link material sources, manufacturers, and markets. Prerequisite: Geography 244.

556 Land Use Planning 3 hrs.
An examination of the philosophy and role of land-use planning at the national, regional, and local levels; study of those decisions involved in the establishment and design of long-range plans for land utilization, and methods of implementation. Prerequisite: Consent of instructor.

570 Urban Geography 4 hrs.
The study of urban settlements as distinctive geographical units. Among the more significant topics considered are (1) the historical geography of urbanization, (2) characteristics of urban forms in selected world regions, (3) approaches to the functional classification of cities, and (4) the analysis of land use patterns and transportation in the modern city and metropolitan region. Special assignments are designed to acquaint the student with source materials and field techniques utilized in urban research. Prerequisite: Geography 244 or junior standing with at least a minor in geography or the social sciences.

Open to Graduates Only

620 Seminar in Physical Geography 3 hrs.
A review of the current literature and recent developments in the disciplines which become synthesized in physical geography. Each student will explore some aspect of the field in depth. Prerequisites: Geology 532, and Geography 621 and 622, or consent.

621 Studies in Climatology and Meteorology 3 hrs.
Studies at an advanced level in climatology and meteorology. Examination and application of dynamic, complex, and synoptic methods of climatic description. Particular emphasis is given to regional climatic and meteorological phenomena and their relation to the general atmospheric circulation. Prerequisite: Geography 105 and 225 or consent.
622 Studies in Soils and Vegetation Geography 3 hrs.

Soil and vegetation patterns are studies to develop the principles and explain the factors which account for areal variation in soil-plant associations. Prerequisites: Geography 105, Introduction to Soils 320; and Biology 100 and 101, or 107; or consent.

610 Seminar in Political and Military Geography 3 hrs. Winter

A review of current literature and recent development in both political and military geography. The geopolitical and geostrategic aspects common to both will be emphasized. Prerequisite: Geography 540, 541, and background in history, politics, and economics; or consent.

612 Seminar in Historical and Cultural Geography 3 hrs.

A review of current literature followed by selection and study of some aspect of the subject in depth. Prerequisite: Geography 542, 543; or consent.

614 Seminar in Economic Geography 3 hrs.

A review of the current literature with emphasis on important developments in economic geography. Prerequisite: Geography 244; or consent.

615 Geographical Factors in the Development of Non-Western Societies 3 hrs.

Critical examination of various types of non-Western society particularly agrarian systems based largely on intensive subsistence or plantation agriculture; analysis of the role of irrigation and nomadism in the development of national states; study of the locational and institutional factors which inhibited the influx of Western ideas (such as the Industrial Revolution); study of transport systems and the impact of transport technology on the development of non-Western states; and consideration of origin and spread of religions and their influence on the development of non-Western cultures.

616 Analysis of Primary Resource Utilization in Developing Nations 3 hrs.

Critical examination of the resource base of developing nations in the tropical and sub-tropical realms, with particular consideration being given to political, economic, and cultural forces affecting resource development. General themes will be developed through a study of current approaches in the measurement and mapping of resources, and examination of representative plans for regional and economic development. Students will prepare case studies in their area of concentration.

617 Developing Societies in the World Geopolitical Scheme 3 hrs.

Critical examination of those aspects of emerging societies which are significant in current ideological conflicts and power struggles. Various concepts such as neutralism, nationalism, neo-colonialism, neo-mercantilism and supra-nationalism are studied in the frame of their
most recent geographic connotations. The emphasis is placed upon po-
itical-geographic interactions throughout the world.

670 Seminar: Urban Geography

A review of the current literature and recent methodological de-
velopments in the field of urban geography. Prerequisite: Geography
570 or consent.

COURSES IN REGIONAL GEOGRAPHY

Open to Graduates and Upperclassmen

511 South America

Regional study of the nations of South America with attention to
the interrelationships of the physical and cultural environments. His-
torical background necessary for the interpretation of the present politi-
cal, social and economic conditions is included. Prerequisite: Geography
105.

512 Middle America

Systematic consideration of the physical environment of Mexico,
Central America and the West Indies. A problems approach is utilized
to reckon with the economic, social and political trends of the region.
Prerequisite: Geography 105.

513 Western and Southern Europe

Intensive regional study of these Western European nations situated
west of the Iron Curtain. The physical elements (climate, landforms,
resources, etc.) are examined and the associated cultural elements are
identified. Emphasis is placed upon the social and economic activities
of contemporary Western Europe. Prerequisite: Geography 105 or
consent.

514 U.S.S.R. and Eastern Europe

Analysis of the physical and cultural geography of the Soviet bloc
in the U.S.S.R. and Satellite Nations; survey of the natural environ-
ment, resources and human occupancy. Prerequisite: Geography 105 or
consent.

515 Monsoon Asia

Intensive study of the physical and cultural environments of the
countries of southern and eastern Asia (from Pakistan to Japan).
Problems of population, food supply, and industrial resources are con-
sidered in view of the emergence of the states of Monsoon Asia on
the world political scene. Special attention is given to the developing
economies of Southeast Asia, the role of Japan, and the comparative
study of China and India. Prerequisite: Geography 105 or consent.
516 Middle East and North Africa  3 hrs.

Study of the diversity and uniformity—both physical and cultural—of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab re-unification movements, and the impact of the Muslim World on the current political scene. Prerequisite: Geography 105 or consent.

517 Middle and South Africa  4 hrs.

General survey of the broad physical realms and the background of contemporary political geography in Africa south of the Sahara; followed by interpretive studies of the major regions and states based on an examination of population distribution, the characteristics of subsistence and commercial agriculture, the availability of power and mineral resources, patterns of transportation, and current programs for regional development. Prerequisite: Geography 105 or consent.

518 The Pacific Realm  3 hrs.

The human and physical geography of the South and Central Pacific, with concentration on Australia, New Zealand, Fiji, and Polynesia. Prerequisite: Geography 105.

Open to Graduates Only

610 Seminar in Regional Geography  3 hrs.

North America will be offered in winter 1967.

An intensive study of selected problems of various world regions such as Latin America, Monsoon Asia, Middle East, Sub-Saharan Africa, Southwest Pacific, or U.S.S.R. Regional specialization will vary from semester to semester, permitting students to repeat the course for credit as long as subject matter is different. Subject for any particular semester will be indicated in advance of offering.

695 Background of Contemporary Problems in Michigan  3 hrs.

An intensive interdepartmental course designed to explore in depth the historical and geographical backgrounds of several outstanding present-day problems in Michigan in the areas of resource-use, conservation, agriculture, industry, and urban-rural conflicts. Resource people from other disciplines, governmental agencies and business will provide for a well-rounded treatment of the major problems of Michigan. Prerequisite: Geography 510 or History 310.

COURSES IN GEOGRAPHIC METHODOLOGY AND RESEARCH

Open to Graduates and Upperclassmen

566 Field Geography  4 hrs.

The theory and application of geographic techniques in field investigations; collection and analysis of field data; preparation and presenta-
tion of materials. The course is based primarily upon field observations. Prerequisite: Geography 380 or consent.

568 Quantitative Methodology in Geography (Phy. Sci. Credit) 3 hrs.

The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography ranging from the use of common statistical techniques to methods of model formulation in the analysis of spatial interaction. Prerequisite: A course in statistics or consent.

580 Advanced Cartography (Phy. Sci. Credit) 3 hrs.

Study of the more complex map projections, the compilation of data and the design of maps and graphs for research papers, and the application of statistical techniques in mapping geographic phenomena. Students are assigned special problems to develop their proficiency in the use of cartography as a tool in research. One hour lecture and 2 two-hour labs. Prerequisite: Geography 380 or consent.

582 Aerial Photograph Interpretation (Phy. Sci. Credit) 3 hrs.

The student will acquire proficiency in the fundamental skills of aerial photographic interpretation during the early weeks of the course. Projects assigned during the final weeks will be adapted to the interest and anticipated future work of the student in physical or social sciences.

598 Readings in Geography 1-3 hrs. Fall, Winter

Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental adviser and instructor.

Open to Graduates Only

661 Geographic Research and Source Materials 3 hrs.

Introduction to problem formulation and research design in the investigation of geographical topics, and the preparation of research studies following currently accepted practices of professional geographers. Special attention to professional literature, geographical bibliographies, map intelligence, procedures of information retrieval and documentation, and data processing. Graduate students in geography are expected to complete this course before enrolling for thesis research. Prerequisite: Written consent of departmental adviser and instructor.

664 The Development of Geographic Thought 3 hrs.

The evolution of the philosophies, concepts and methods in use by geographers today is traced and evaluated. Prerequisite: An undergraduate major or minor in geography and written consent of instructor.
Geology

Schmaltz: Head: Assistant Professors Davis, McGehee

Open to Graduates and Upperclassmen

507 Teaching of Earth Science 2 hrs.
 Philosophical objectives, and methods of teaching secondary school
earth science. Designed for earth science majors and minors. One hour
lecture and two hours of laboratory. Prerequisite: 16 hours of Earth
Science or consent.

532 Geomorphology 3 hrs.
 A systematic study of the development of land forms as created by
the processes of vulcanism, gradation, and diastrophism with interpre-
tation of topographic and geologic maps, and aerial photographs. Pre-
requisite: Geology 130 or 230.

533 Invertebrate Paleontology 4 hrs.
 Morphology, classification, evolution, and stratigraphic distribution
of major invertebrate fossil groups. Three lectures and a three-hour
laboratory. Prerequisite: Geology 231, or consent.

535 Stratigraphy 3 hrs.
 Principles of stratigraphy including sedimentation, correlation,
facies, tectonics, and sedimentary environments and rocks. Prerequi-
site: Geology 231 or consent of instructor.

536 Glacial Geology 3 hrs.
 A study of the mechanics of glacier movement, processes of glacial
erosion and deposition, and the distribution of glacial features in space
and time. Special emphasis will be placed on the glacial geology of the
Great Lakes area. Prerequisite: Geology 230 or consent of instructor.

538 Oceanography 3 hrs.
 Survey of oceanographic sciences including physical, chemical, bio-
logical, and geological oceanography. Lecture three hours a week. Pre-
requisite: Geology 112 and consent of instructor or 231.

539 Elementary Field Geology 3 hrs.
 Field studies of rocks, structures, and land forms. Areas of geologic
interest in the central and eastern U.S. are visited. Prerequisite: Geology
336 or 301.

Open to Graduates Only

631 Geology for Teachers 4 hrs.
 A study of the more common rocks, minerals and fossils and a
consideration of rock structures and the development of landforms with
special emphasis upon Michigan and the Great Lakes Basin. Three
hours of lecture and two hours of laboratory.
History

Dunbar, Head; Professors Breisach, Brown, Brunhumer, Castel, Elsasser, Hammer, Macmillan, Mange, Mowen, Sommerfeldt, and Star- ring; Associate Professors Beech, Cordier, Hahn, Hawks, Nahm, and Nodel; Assistant Professors Schmitt and Soremekun.

I. COURSES DEALING WITH A RESTRICTED CHRONOLOGICAL PERIOD OR SPECIAL PHASE OF HISTORY

Open to Graduates and Upperclassmen

A. INTELLECTUAL HISTORY

506 Intellectual History of Western Man to 1550 3 hrs.
A study of the leading ideas and intellectual movements in western civilization from the earliest times to about 1550. Not offered, 1966-67.

507 Intellectual History of Western Man Since 1550 3 hrs.
Modes of thought and expression characteristic of the Renaissance; the scientific revolution of the 17th century; classicism and the baroque in literature and the arts; the 18th century Enlightenment; liberalism and nationalism in the 19th century; materialism and socialism, formation and leading features of the contemporary world view.

508 American Intellectual History 3 hrs.
The development of American thought from colonial times to 1890. Major themes in the American experience as illustrated by philosophers, theologians, educators, political scientists and economists, and by friends in the fine arts.

509 American Intellectual History 3 hrs.
Major developments in American intellectual life from 1890 to the present. Reactions to urbanization and to the emergence of the United States as a world power.

B. UNITED STATES HISTORY

510 Field Courses in Michigan History 3 hrs.
Preliminary readings and lectures are to be followed by about sixteen days of bus travel visiting places of historic interest.

511 Historical Museums Workshop 3 hrs.
This course will consist of lectures, demonstrations, field trips, reading, discussion, and work experiences in museum theory and technique.

515 A Social History of Art and Architecture in America 2 hrs.
Art and architecture as aids to understanding American thought and life. Colonial aspirations, the development of a national identity and
contemporary movements in the arts are placed in historical perspective. Significant trends in artistic expression as related to Jeffersonian thought, the frontier experience, industrialism and urbanization.

516 Constitutional History of the U.S. to 1877 3 hrs.
The development of constitutional theory and practice, with emphasis on the establishment of the governmental system and federal-state relations.

517 Constitutional History Since 1877 3 hrs.
Continuation of course 516 down to the present, with emphasis on federal regulation of the economy and civil rights. Prerequisite: course 516 or consent of instructor.

518 History of United States Foreign Relations 3 hrs.
The formation and evolution of United States foreign policy and foreign relations from the beginnings of the republic to the present.

520 Colonial America 3 hrs.
The English colonies in America, both continental and island, 1607-1763, with emphasis on the development of institutions and imperial policy and administration.

521 Era of the American Revolution 3 hrs.
The causes, character, and consequences of the American Revolution.

522 The Early National Period, 1789-1814 4 hrs.
The establishment of the national government; political, social, and cultural development; Jacksonian democracy; westward expansion.

524 The Civil War and Reconstruction 3 hrs.
Causes and course of the Civil War; its significance and aftermath.

532 From Reconstruction to the Great Depression: 1877-1929 4 hrs.
An intensive study of industrialism and urbanization, overseas expansion, progressivism, World War I, the 1920's, and the causes of the Great Depression.

533 Recent U.S. History: 1929 to the Present 4 hrs.
The New Deal, the coming of World War II and the impact of the War; America's role in the post-war period.

C. HISTORY OF EUROPEAN NATIONS

535 Medieval England 3 hrs.
English history during the Middle Ages, especially the period after the Norman conquest; the development of economic, social, religious, and governmental institutions.

536 Tudor-Stuart England 3 hrs.
The history of England during the reigns of the Tudors and the Stuarts, 1485-1714.
537 **Hanoverian England**  
Britain during the reigns of the Hanoverian kings, 1714-1837.

538 **Victorian England**  
The character of Victorian England and its impact on the world.

539 **Twentieth Century Britain**  
British development since 1900 and the changing character of the Empire and Commonwealth.

540 **Social and Cultural History of Czarist Russia**  
Significant intellectual currents in Russia with emphasis on the relationship between ideas and society in Czarist Russia.

541 **The U.S.S.R. in World Affairs**  
The ideological, psychological, political, and economic factors in the evolution of Soviet foreign policy with respect to individual countries, international problems and outer space.

542 **Social and Cultural History of the U.S.S.R.**  
The history of the principal ethnic groups of the U.S.S.R., Soviet policy towards these groups, and the extent of their assimilation into Soviet society.

**D. EUROPEAN HISTORY**

551 **Augustan Rome, 44 B.C.-68 A.D.**  
A study in depth of Roman politics and culture from the close of the Republican period through the Julio-Claudian Empire.

552 **The Medieval Church**  
The impact on Christianity of classical culture, and the barbarian invasions; the church and feudalism; church-state relations; the rise and fall of papal theocracy, scholasticism, and mysticism.

553 **Social and Economic History of the Middle Ages**  
The feudal system, the role of merchants and bankers, education, life in the town, medieval science and the arts.

554 **The Renaissance**  
Life, thought, and art of the period; humanism, racial and economic life in Renaissance Europe.

555 **The Reformation**  
The break-up of the medieval church and its significance.

557 **Seventeenth Century Europe**  
The Thirty Years War and the shifting of power relationships; colonial enterprise and colonialism; absolutism; the rise of science; the baroque spirit.
558 The Eighteenth Century 3 hrs.
The development of absolutism; institutions, life, and thoughts of the 18th century, with special emphasis on France. Not offered 1966-67.

559 The French Revolution and Napoleon 3 hrs.
The overthrow of the French monarchy; the rise and fall of the Napoleonic Empire; the spread of revolutionary principles throughout Europe.

560 Continental Europe, 1815-1914 4 hrs.
The reaction following the Napoleonic wars; revolutions in behalf of liberalism and nationalism; the emergence of new states; the growth of nationalism and imperialism.

562 Europe From 1914-1945 3 hrs.
The origins and nature of World Wars I and II; the Great Depression; rise of Fascism, Nazism, and Communism.

563 Europe Since 1945 3 hrs.
The recovery of Europe from World War II; the movement towards European unity. The cold war; NATO and the defense of free Europe.

E. LATIN AMERICA AND CANADA

571 Mexican History 3 hrs.
The evolution of Mexico from the Wars of Independence to the present, with special attention to relations with the United States.

572 History of the Plata Region 3 hrs.

575 Canadian History 3 hrs.
A survey of Canadian History from the time of the earliest French settlements to the present with emphasis on Canada's political and economic development within the British Commonwealth of Nations.

F. THE FAR EAST AND AFRICA

580 China Since 1912 3 hrs.
The impact of the West on China before and after the Revolution of 1912; transition from Nationalism to Communist China; origins and growth of Communist China, its impact on world peace, its aims and aspirations.

581 Modern Japan 3 hrs.
The opening of Japan to the West; the rise of Japanese militarism; World War II; the Allied occupation; Korea under Japanese rule; domestic and foreign affairs since World War II.
587 Sub-Saharan African History Prior to the Twentieth Century 3 hrs.

Historical survey of pre-colonial Africa south of the Sahara.

588 Africa in the Twentieth Century 3 hrs.

Political, social, and economic developments in Africa south of the Sahara, 1885 to the present; the rise and fall of colonialism in Africa and the emergence of independent states.

II. GENERAL COURSES

592 The Literature of History 2 hrs.

Selected writings of great historians with the purpose of evaluating different approaches to history, the use of sources, handling of controversial matters, and developing appreciation of good history.

593 The Philosophy of History 2 hrs.

An inquiry into the conscious and unconscious attitudes toward history, which, when systematized, are philosophies of history. The thought and positions of such thinkers as St. Augustine, Ibn Khaldun, Marx Dilthey, Spengler, Toynbee, and Jaspers.

594 Modern Warfare to 1945 3 hrs.

An analysis of the evolution of military theory and doctrine and the role of ideas in military affairs from the 17th Century to the end of World War II.

598 Independent Research in History 2-3 hrs.

Research on some selected period or topic under supervision of a member of the History faculty. Approval of instructor involved and chairman of the Department Honors Committee must be secured in advance of registration.

III. SERVICE COURSES

569 Background of Recent European History 2 hrs.

For seniors and graduate students not majoring in History. The movement forward European unity; the cold war; currents of contemporary thought; economic development; changing political and cultural patterns.

629 The West in American History 2 hrs.

Especially for graduate students not working for a M.A. in history. Exploration, trade, transportation, settlement, Indians, land, and government developments and problems are studied. (Open only to Graduate Students.)
### IV. COURSES OPEN ONLY TO GRADUATE STUDENTS

#### A. STUDIES IN HISTORY

(Courses in which, through lectures, reading, reports, and discussion topics in an historical field are explored in depth. Where only general field is indicated, the specific field will be specified in the schedule of classes when the course is offered.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>610</td>
<td>Studies in Michigan History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>628</td>
<td>The History and Culture of the Old Northwest</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>637</td>
<td>Studies in Recent United States History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>652</td>
<td>Medieval Studies</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>654</td>
<td>Studies in the Renaissance and Reformation</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>658</td>
<td>The Enlightenment</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>662</td>
<td>Studies in Russo-Soviet History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>664</td>
<td>France Since Napoleon</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>667</td>
<td>Studies in Recent European History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>685</td>
<td>Far East Since 1945</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

#### B. SEMINARS

(Courses which focus on research and the preparation of papers. The specific field of each seminar, when offered, will be indicated in the schedule of classes.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>626</td>
<td>Seminar in Early American History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>636</td>
<td>Seminar in Recent American History</td>
<td>3 hrs. Not offered 1966-67</td>
</tr>
<tr>
<td>646</td>
<td>Seminar in Ancient and Medieval History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>656</td>
<td>Seminar in Early Modern European History</td>
<td>3 hrs. Not offered 1966-67</td>
</tr>
<tr>
<td>666</td>
<td>Seminar in Recent European History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>676</td>
<td>Seminar in Russo-Soviet History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>686</td>
<td>Seminar in Far East History</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

#### C. PROFESSIONAL COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>690</td>
<td>Historical Method</td>
<td>2 hrs.</td>
</tr>
</tbody>
</table>

Designed to introduce students to and familiarize them with the tools, techniques, and principles of historical research and writing. The principal reliance is upon exercises in the application of historical method to specific problems.
692 Studies in Historical Literature 3 hrs.

A course offered to acquaint the student with the major historical works in his designated field of special interest. Required of all candidates for the Master's or Specialist degree in History. Students enrolling should consult the Graduate Adviser. The course should be taken during the semester or session during which the student expects to receive the degree.

699 Historical Essay 4 hrs.

Under the supervision of a member of the faculty, the student prepares an historical essay in his field of special interest.

Language

Wonderley, Head; Professors Noble and Rothfuss; Associate Professors Cole, Gallant, Giedeman, Jones, Osmun, Salz, Urbanski; Assistant Professor Ebling.

LANGUAGE TEACHING COURSES

Language 558 (French), or (German), or (Spanish), or (other language)

Modern Language Instruction 3 hrs.

Required for modern language teaching majors; recommended for teaching minors. The principles underlying language learning and teaching methodology are treated, with particular attention to the audiolingual method of instruction in the target language. Emphasis is placed on practical problems encountered by the language teacher. Preferably, students should complete this course before beginning directed teaching. The various languages will be offered periodically.

The comparable methods course for Latin, 557 Teaching of Latin, is described under Latin offerings.

FRENCH

Open to Upperclassmen and Graduate Students

French 514 Summer Proseminar in France 4 hrs.

A summer study of French language, literature, and culture concentrated at Grenoble and Paris. Designed especially for teachers and advanced college students of French, the course consists of three weeks of formal classes at the University of Grenoble with regularly scheduled lectures and discussions in the French language on questions relating to French history, institutions, social problems, linguistics, and teaching methods. The session at Grenoble is supplemented by twelve days of organized inspection of cultural monuments in Paris with full explanations by an instructor for all points visited. Each student submits a term paper investigating one phase of his studies of particular interest to him. Graduate or undergraduate credit. Offered in summers of 1969 and 1972.
French 550 Independent Study in French 1-3 hrs.
Directed, individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission.

French 551 Advanced French Composition 3 hrs.
Intensive practice with written French. Prerequisite: six hours of French, 316-317-556 or equivalent.

French 552 Advanced French Conversation 3 hrs.
Intensive practice with spoken French. Prerequisite: six hours of French 316-317-556 or equivalent.

French 556 French Conversation for Elementary Education Teachers 3 hrs.
Conversational practice with subject matter and vocabulary geared to the particular needs of students planning to teach French on the elementary school level. Open only to students in the elementary education curriculum. Prerequisite: French 316, 317, or equivalent.

French 560 Studies in French Literature 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: six hours selected from French 322, 326, 327, 328, 329, 550. Representative topics which may be treated in this area include:

Medieval and Renaissance Literature—Outstanding works from the Chanson de Roland (in modern French) to the end of the sixteenth century.

Seventeenth Century Literature—Preclassic period: Reforms of Malherbe, preciosité. Descartes, beginnings of classical drama, and Corneille. Also, Classic period: significant works from the beginning of the reign of Louis XIV to his death.

Eighteenth Century Literature—Analysis of outstanding works of the period.

Twentieth Century Literature—General analysis of representative works from the beginning of the century to the end of the Second World War. Also, particular emphasis on contemporary drama and post-war literature.

Open to Graduates Only

French 600 French Classical Drama 3 hrs.
Drame classique. Seventeenth century French tragedy and the comedies of Molière.

French 601 Voltaire and Rousseau 2 hrs.
Voltaire et Rousseau. Influential ideas of the eighteenth century expressed in the writings of Voltaire and Rousseau.

147
French 602 Contemporary French Novel

*Roman contemporain.* Representative novels of the twentieth century.

French 620 Seminar

*Seminar.* Topic to be selected from a French literary or linguistic area.

GERMAN

Open to Upperclassmen and Graduate Students

German 510 The Central European Area

Investigates cultural aspects necessary for an understanding of Central Europe. Countries included are Germany, Austria, Switzerland, and Czechoslovakia. Historic, geographic, social and religious factors are treated. No foreign language prerequisite.

German 550 Independent Study in German

Directed, individual study of a specific topic in a German literary or linguistic area. Departmental approval is required for admission.

German 552 Advanced German Composition and Conversation

Intensive practice with written and spoken German. Required for graduate students. Prerequisite: six hours of German 316-317-556 or equivalent.

German 556 German Conversation for Elementary Education Teachers

Conversational practice with subject matter and vocabulary geared to the particular needs of a student planning to teach German on the elementary school level. Open only to students in the elementary education curriculum. Prerequisite: 3 hours of German 316-317 or equivalent.

German 559 History of the German Language

Survey of the development. Prerequisite: six hours of “500” level German or equivalent.

German 560 Studies in German Literature

Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: German 326 or 328 or equivalent. Representative topics which may be treated in this area include:

- The *Novelle*—Survey of the development with representative selections.
- Lyric Poetry—Survey of the development with significant selections.
- Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebel, and Hauptmann.
- Twentieth Century Drama—Representative selections.
German 575 German Literature in English Translation 3 hrs.

A comparative study of literary themes and techniques of major German writers from Hauptmann to the present, including Mann, Brecht, Kafka, and Borchert. This course does not apply toward a major or minor in German. No prerequisite.

Open to Graduates Only

German 600 Goethe 3 hrs.

Das Werk Goethes. The literary and cultural contributions of Goethe, excluding Faust. Alternates with German 640.

German 601 Faust 3 hrs.

Goethes Faust. Significant selections from parts I and II of the poem. Alternates with German 641.

German 610 Basic Middle High German 3 hrs.

Einführung in die mittelhochdeutsche Sprache. Introduction to MHG language and literature.

German 611 Middle High German Literature 3 hrs.

Die mittelhochdeutsche Dichtung. Literary selections. Prerequisite: German 640 or equivalent.

German 620 Seminar 2-4 hrs.

Ausgewählte Gegenstände aus dem Gebiete der Germanistik. Topic to be selected from a German literary or linguistic area.

LATIN

Open to Upperclassmen and Graduate Students and Others by Permission of the Instructor

Latin 550 Independent Study in Latin 1-3 hrs.

Directed, individual study of a specific topic in a Latin literary or linguistic area. Departmental approval required for admission.

Latin 552 Latin Writing 3 hrs.

Practice in the fundamentals of correct expression. Required for Latin majors. Prerequisite: Latin 326 or 327 or equivalent.

Latin 557 Teaching of Latin 3 hrs.

For prospective teachers of Latin in the elementary or secondary school. Principles, problems, and current practice.

Latin 560 Studies in Latin Literature 3 hrs.

Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: Latin 326 or 327 or equivalent. Representative topics which may be treated in this area include:
Satire—Rome as pictured in the Conversations of Horace and the invectives of Juvenal. Readings on the origins and development of satire as a genre.

History—Reading and appraisal of Livy and of Tacitus as historians and literary artists.

Bucolic Poetry—Readings from Vergil's *Eclogues* and *Georgics* plus selections from later writers of bucolic poetry and discussion of its development as a literary form.

Lyric and Elegiac—Broad readings in Roman poetry, centering around Catullus, Ovid, Martial and the other poets of love. Discussion of the origin and influence of elegy as a poetic form.

Medieval Latin—A study of the period 500-1500 A.D. when Classical Latin was blending into the new vernaculars to form eventual Romance Languages. Prose and poetic readings include a variety of themes reflecting the intellectual, cultural, and religious thinking of the times.

**Latin 568 Mythology**

Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music, and sculpture. No prerequisite.

**Latin 575 Classical Drama in Translation**

Readings and analysis of selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes as dramas and as expressions of the Greek view of life. Some attention to Roman drama.

**RUSSIAN**

Open to Upperclassmen and Graduate Students

**Russian 550 Independent Study in Russian**

Directed, individual study of a specific topic in a Russian literary or linguistic area. Departmental approval required for admission.

**Russian 510 Russian Civilization**

Survey of the historical, cultural, and philosophical development of Russia from its origins to the present. Prerequisite: Russian 201 or equivalent.

**Russian 556 Russian Conversation for Elementary Education Teachers**

Conversational practice with subject matter and vocabulary geared to the particular needs of students planning to teach Russian on the elementary school level. Open only to students in the elementary education curriculum. Prerequisite: Russian 201 or equivalent.
Russian 560  Studies in Russian Literature  3 hrs.

Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: six hours of 300-level Russian or equivalent. Representative topics which may be treated in this area include:

Poetry—Selections from classic masterpieces and contemporary poetry.

Eighteenth Century Literature—Survey of the classical and pre-romantic periods.

Nineteenth Century Literature—Representative selections from the period.

SPANISH

Open to Upperclassmen and Graduate Students

Spanish 550  Independent Study in Spanish  1-3 hrs.

Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission.

Spanish 556  Spanish Conversation for Elementary Education Teachers  3 hrs.

Conversational practice with subject matter and vocabulary geared to the particular needs of students planning to teach Spanish on the elementary school level. Open only to students in the elementary education curriculum. Prerequisite: Spanish 316 or equivalent.

Spanish 560  Studies in Spanish Literatures  3 hrs.

Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: Spanish 328 or 329 or equivalent. Representative topics which may be treated in this area include:

Cervantes—Don Quijote and other works of Cervantes together with his life and thought.

Seventeenth Century Theater—Main works of Lope de Vega through Calderon de la Barca.

Nineteenth Century Novel—Development of the regional novel from Fernán Caballero through Blasco Ibáñez.

Generation of '98—Thought and works of typical representatives as Unamuno, Ortega y Gasset, and Azorin.

Contemporary Theater—Evolution and analysis of the characteristics.

Spanish-American Short Story—Significant short stories along with the cultural and social background.

Contemporary Spanish-American Novel—The twentieth century novel along with the cultural and social background.
Open to Graduates Only

Spanish 600  Golden Age Prose  3 hrs.
Study and comparison of the major prose types of the period with
special attention to the picaresque novel.

Spanish 602  Contemporary Spanish Novel  3 hrs.
Study of forms and trends.

Spanish 603  Spanish-American Modernism  3 hrs.
Study of the rise and development of major works of the period.

Spanish 606  Medieval Spanish Literature  3 hrs.
Linguistic and literary analysis from the time of the Cid to the
fifteenth century.

Spanish 608  Nineteenth and Twentieth Century Spanish Poetry  3 hrs.
Study of trends from Romanticism to present times and analysis of
works of the major poets.

Spanish 620  Seminar  2-4 hrs.
Topic to be selected from a Hispanic literary or linguistic area.

Mathematics

Powell, Head; Professors Beeler, Hannon, McCully and Seber; As-
sociate Professors Alavi, Janowitz, Leja, Lick, Meagher, Petro, Turner,
Vollmer, Verma; Assistant Professors Chartrand, Chiang, Hsieh, Lofts-
gaarden, Schriener, and Tarwater.

Open to Graduates and Upperclassmen

500  Differential Equations  3 hrs.
This course is a continuation of linear ordinary differential equa-
tions studied in Math 223 or 306. Topics included: simultaneous linear
equations, equations with variable coefficients, series solutions leading
to Bessel, Legendre and other functions, partial differential equations,
method of separation of variables in Laplace's and related equations.
Prerequisite: Math 223 or 306 (Math 380 recommended).

506  Programming for Computers  3 hrs.
Designed to give preparation in the organization and general use
of high speed computing machines used in scientific and engineering
computations. The language of the Computer, Symbolic Programming
System, and Fortran II will be used to prepare programs. Problems such
as exponential, multiplication of matrices, inverse of a matrix, solution
of polynomials, numerical integration, and solution of a differential
equation will be prepared to be run on the Computer. Prerequisite:
Math 222 (223 recommended)
507 Numerical Analysis 3 hrs.
Numerical methods involving polynomial evaluation, Legendre polynomials, Cebyshev polynomials, differences, integration, solution of differential equations and linear programming. Prerequisite: Math 223 or 306 and Math 506.

508 Automatic Programming Systems 3 hrs.
A thorough study of the internal organization of the Fortran Compiler. Each student will be required to construct a compiler. Prerequisite: Math 506.

520 Introduction to Topology 3 hrs.
An introduction to both point-set and combinatorial topology. Topics will include metric spaces, topological spaces, compactness, connectedness and connectivity, graph theory, Euler's Theorem and manifolds. Prerequisite: 380.

530 Linear Algebra I 3 hrs.
Properties of n-dimensional vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: Math 330.

531 Linear Algebra II 3 hrs.
A continuation of Math 530. Topics covered will include rational and Jordan canonical forms, inner product spaces, self-adjoint, unitary, and normal operators, the spectral theorem and bilinear forms. Prerequisite: 530.

540 Introduction to Algebraic Geometry 3 hrs.
A study of the basic properties of projective space of n-dimensions utilizing both the algebraic and synthetic definitions, representation of projective geometry as the geometry of subspaces of a vector space, and the algebraic approach to affine geometry. Prerequisite: 380. (Math 330 recommended)

542 Differential Geometry 3 hrs.
Curvature and torsion of curves, transformations and tensor calculus, geodesics and other curves on surfaces, conformal and isometric mappings, minimal surfaces. Prerequisite: 570.

550 Teaching of Secondary Mathematics 3 hrs.
In this course consideration is given to curriculum problems and trends in secondary school mathematics and to specific problems of teaching mathematics effectively to secondary school students. Prerequisite: Math 380.

552 Teaching of Elementary Mathematics 2 hrs.
In this course consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Prerequisite: Math 150 or equivalent.
Mathematical Statistics 3 hrs.

Probability spaces, mathematical expectation, moment generating functions, some special distributions of the discrete and continuous type, sampling theory, independence, statistical inference, transformations of variables. Prerequisite: Math 380 or equivalent.

Mathematical Statistics 3 hrs.

A continuation of Math 560. Point estimation, maximum likelihood estimates, sufficiency and stochastic independence, limiting distributions, some distribution free problems, statistical hypotheses, quadratic forms and some multivariate distributions. Prerequisite: Math 560.

Statistical Analysis I 3 hrs.

Theory and methods of analyzing experimental data. Tests of hypotheses, including classical normal and chi-square tests, multiple correlation analysis, multiple regression analysis, least squares, analysis variance, experimental design, and some nonparametric tests. Prerequisite: Math 222, (Math 223 recommended)

Statistical Analysis II 3 hrs.

A continuation of Math 562. Prerequisite: Math 562.

Introduction to Analysis I and II 3 hrs.

This course constitutes a further study of calculus beyond that covered in Math 122, 123, 222, and 223. The two semester sequence will include an abstract treatment of vector spaces and linear transformations. The gradient, curl, divergence and exterior derivative will be obtained from a single basic derivative. The various multiple integral theorems will appear as special cases of a general Stoke's formula concerning the integration of exterior forms. Prerequisite: Math 380. (530 recommended)

Applied Analysis I 3 hrs.

This course and Math 576 form a two semester sequence wherein the principle aim is the study of certain topics in math which are useful in varied fields of application. Topics will be selected from vector analysis; differential equations, series solutions and some special functions; partial differential equations; Laplace transform; complex variables and contour integration; conformal mapping; calculus of variation. Prerequisite: 223 or 306.

Applied Analysis, II 3 hrs.

See Mathematics 575. Prerequisite: 575.

Number Theory 3 hrs.

Diphantine equations, congruences, quadratic residues, and properties of number theoretic functions. Prerequisite: Math 380 or equivalent.
Independent Study in Mathematics 1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approval of head of department.

Open to Graduates Only

Fourier Series and Boundary Value Problems 3 hrs.
Topics covered include Fourier Series and Fourier Integrals and a further study of boundary value problems and special functions beyond those covered in Math 500. Prerequisite: Math 500; 570 or equivalent.

Operational Mathematics 3 hrs.
Topics covered include the study of the theory and application of Laplace Transform and other linear integral transformations. Prerequisite: Math 500; 676 or equivalent.

Studies in Applied Math 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

Topology 4 hrs.
Elementary properties of topological spaces, metric spaces, compact spaces, and continuous functions. Prerequisite: Math 570.

Algebraic Topology 3 hrs.
Topics will include: Simplicial complexes, homology, and cohomology theories including singular homology theory. Prerequisite: Math 620.

Studies in Topology 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

Abstract Algebra I 3 hrs.
Algebraic system studied include groups and sub-groups, rings and ideals, and fields. Quotient structures and ring extensions are discussed in detail. Prerequisite: Math 530.

Abstract Algebra II 3 hrs.
A continuation of 630.
Topics will be selected from: modules, linear transformations, Galois Theory, Gaussian domains, Noetherian rings, and structure of rings. Prerequisite: Math 630.

Studies in Algebra 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.
612 Geometric Algebra 3 hrs.
Affine and projective geometries, construction of coordinates, symplectic and orthogonal geometries. Prerequisite: Math 630.

619 Studies in Geometry 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

660 Theory of Statistics I 3 hrs.
Material covered will be chosen from the areas of probability, least squares and analysis of variance, statistical inference, nonparametric statistics, decision theory and multivariate analysis. Prerequisite: Math 561 and Math 570 (Math 530 recommended)

661 Theory of Statistics II 3 hrs.
A continuation of Math 660. Prerequisite: 661.

Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

670 Real Analysis I 3 hrs.
Basic topological and metric properties of the real line, real-valued functions, convergence, continuity and bounded variation. Prerequisite: Math 570.

671 Real Analysis II 3 hrs.

672 Functional Analysis I 3 hrs.
This course will include a discussion of the following topics. Metric Spaces, Normed Spaces, Banach Spaces, Hilbert Spaces. Prerequisite: 670.

673 Functional Analysis II 3 hrs.
A continuation of Math 672 to include such topics as linear topological spaces, locally convex spaces, and Banach Algebras. Prerequisite: 672.

676 Complex Analysis I 3 hrs.
Cauchy Theory, series expansion, types of singularities, analytic continuation, and theory of residues. Prerequisite: Math 570.

677 Complex Analysis II 3 hrs.
Power series, representation theory, singularities, calculus of residues, analytic continuation, conformal mapping, meromorphic functions. Prerequisite: 676.
679 Studies in Analysis 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once. The prerequisite for any seminar will be the approval of the Instructor in charge.

690 Seminar in Applied Mathematics 1-3 hrs.
692 Seminar in Topology
693 Seminar in Algebra
694 Seminar in Geometry
696 Seminar in Probability and Statistics
697 Seminar in Analysis
698 Journal Seminar 2 hrs.
The student will investigate math journal articles related to a topic selected by him with the approval of the graduate faculty member in charge of the seminar. The student will prepare for presentation to the seminar at least one article.

The following courses are primarily for teachers and in general will not apply towards the M.A. in Mathematics.

610 Concepts of Mathematics 4 hrs.
This course will include the following topics: sets, relations, functions, equivalence and order relations, axioms, groups, rings, fields, logical structure of elementary algebra, integers, rational and real numbers, inequalities, mathematical induction. Prerequisite: Consent of Department Head.

612 Probability and Statistics 4 hrs.
This course will include the following topics: probability models, sampling, conditional probability, random variables, binomial distribution, normal distribution, estimation, tests of significance. Prerequisite: Consent of Department Head.

613 Elementary Theory of Numbers 4 hrs.
This course will include the following topics: division algorithm, primes, fundamental theorem of arithmetic, congruences, diophantine equations, historical background. Prerequisite: Consent of Department Head.

614 Mathematical Logic 4 hrs.
This course will include the following topics: sentential connectives, theory of influence, symbolizing language, quantifiers, formal and informal proofs. Prerequisite: Consent of Department Head.
615 Intermediate Analysis 4 hrs.
This course will include the following topics: limits, continuity, differentiation, integration, applications. It will stress concepts rather than techniques. Prerequisite: Consent of Department Head.

617 Foundations of Geometry 4 hrs.
The first part of the course will be a survey of analytic geometry in space using vector methods. The second part will be an axiomatic development of projective geometry and analytic projective geometry in n-dimensions. Prerequisite: Consent of Department Head.

619 Numerical Methods 4 hrs.
This course will include the following topics: automatic programming, systems for digital computers, matrices, inequalities, areas, other selections from numerical analysis. The participants will actually use the IBM 1620. Prerequisite: Consent of Department Head.

650 Mathematics for Elementary School Teachers 2 hrs.
Emphasizes the concepts and foundations of the mathematics commonly taught in the elementary school, and of associated problems of learning and teaching. Each student will be expected to study and report on some special problem or aspect of the teaching of arithmetic.

652 Mathematics for Junior High School Teachers 2 hrs.
This course is designed to acquaint the student with modern trends in Junior High School Mathematics. Several current programs will be studied to determine what topical content should be included and the treatment to be given to this content in a modern mathematical program for Junior High School Students.

654 Curriculum Studies in Algebra and Geometry 4 hrs.
Current recommendations, materials, and methods related to teaching mathematics in secondary schools are used as the basis for reports and projects to be prepared and given by the students. Prerequisite: Consent of Department Head.

Music
Stulberg, Acting Head; Professors E. Adams, Carter, Matthews, Meretta, and Beloof; Associate Professors Faustman, Fink, Hardie, Osborne; Assistant Professors Heiles, Ryan, and Work.

Open to Graduates and Upperclassmen

530 Advanced Choral Conducting 1 hr.
Supervised experience in conducting vocal groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Choral Conducting.
531 Advanced Instrumental Conducting 1 hr.

Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Instrumental Conducting.

540 Elementary School Music 2 hrs.

Emphasizes the place of music in the curriculum and the use of music in the day to day activities of the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.

541 Music Supervision and Consultation 2 hrs.

A study of the structuring and implementation of a music education program in the schools, in terms of three organizational relationships: the music administrator or supervisor, the scheduled music teacher, and the unscheduled music consultant. Relation of music specialist to classroom teacher.

544 Analysis and Evaluation of Music Education Materials 2 hrs.

A study of the theoretical bases for, and practice in analyzing and evaluating music for use in music education programs.

560 Counterpoint 2 hrs.

Modal and harmonic counterpoint as exemplified by the composers of the fifteenth, sixteenth, seventeenth, and early eighteenth centuries. Modern counterpoint. Practical application through the writing of strict counterpoint in the five species, double counterpoint, obligatos, descants, canons and fugues. Prerequisite: 260 and 261.

561 Counterpoint 2 hrs.

A continuation of 560.

562 Advanced Composition 2 hrs.

Original work in composition dealing with the larger forms in both the vocal and instrumental fields. Prerequisite: Composition.

563 Advanced Composition 2 hrs.

A continuation of 562.

564 Form in Music (on demand) 2 hrs.

A survey of the musical forms, large and small, used from the Baroque period to the present day. Analysis of both structure and texture of representative works of the various periods and styles.

567 Orchestration 2 hrs.

A study of the characteristics of the various instruments, application in arranging for various instrumental combinations including accompaniments for solos, vocal and instrumental. Covers arranging for both band and orchestra. Prerequisite: 260 and 261.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>568</td>
<td>Orchestration</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>A continuation of 567.</td>
<td></td>
</tr>
<tr>
<td>572</td>
<td>Baroque Music (1600-1750)</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>A survey of the choral and instrumental music of the Baroque masters such as J. S. Bach and G. F. Handel. Special attention to the cantatas, oratorios, motets, passions, and masses.</td>
<td></td>
</tr>
<tr>
<td>572</td>
<td>Baroque Music (1600-1750)</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>A survey of the choral and instrumental music of the Baroque masters such as J. S. Bach and G. F. Handel. Special attention to the cantatas, oratorios, motets, passions, and masses.</td>
<td></td>
</tr>
<tr>
<td>573</td>
<td>Classical Music (1750-1800)</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>Examination of the chief works of the period by composers such as Stamitz, Mozart, and Haydn, with intensive study into the symphony and its derivation commencing with the Mannheim School; also chamber music, concertos, operas and sacred music.</td>
<td></td>
</tr>
<tr>
<td>574</td>
<td>Romantic Music (1800-1910)</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>Music of the important composers of the period such as Beethoven, Brahms, and Wagner, along with historical, cultural and political backgrounds of the works. Special attention to growth of Nationalism in the music of various countries.</td>
<td></td>
</tr>
<tr>
<td>598</td>
<td>Readings in Music</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>Graduate students may enroll in this area after consultation with the graduate adviser.</td>
<td></td>
</tr>
</tbody>
</table>

Open to Graduates Only

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>617</td>
<td>Opera Workshop</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>A production experience in the acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and will culminate in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.</td>
<td></td>
</tr>
<tr>
<td>640</td>
<td>Band Techniques and Organization</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>641</td>
<td>Choral Techniques and Organization</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>The study of choral activities in relation to organization, repertoire, style, diction, singing technique, balance, blend, tone quality, phrasing, rehearsal technique and conducting.</td>
<td></td>
</tr>
<tr>
<td>642</td>
<td>Philosophy and History of Music Education</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>Designed to acquaint the student with the development of music education in the United States and how this development is the reflection of a growing philosophy of music education.</td>
<td></td>
</tr>
<tr>
<td>643</td>
<td>Psychology of Music Education</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>Personal and social needs, motives and goals in relation to music in education. The function of musical achievement and aptitude tests in</td>
<td></td>
</tr>
</tbody>
</table>
music education. Psychological aspects of behavior pattern in musical organizations. Physical, social and psychological factors involved in a developmental music program.

650 Seminar in Music Education 2 hrs.

Each participant will be expected to develop a project which is of interest to him, but each project will be subject to group discussion, review and analysis. The lectures and reading will deal with the whole field of Music Education.

658 Techniques of Research in Music Education 2 hrs.

Available research in music education will be analyzed as to method and technique. Outlines will be submitted for proposed studies involving the techniques thus discovered, and one will be developed.

659 The Teaching of Applied Music (on demand) 2 hrs.

Survey of teaching problems involved in music of various periods and styles. Critical analysis of performances in student’s major performance medium, as well as other media will be required. Pedagogical problems of teaching both secondary and university age level students will be considered.

660 The Teaching of Theory (on demand) 2 hrs.

Analysis of various techniques, philosophies, and materials used in teaching theory. Analysis of relative strengths and weaknesses. Application of what we know about the learning processes to theory and the practical application of theory to all musical study.

665 Band Arranging 2 hrs.

Instruction in scoring for small wind instrument ensembles and the band. Opportunity will be provided to hear the results of each student’s work. Offered even-numbered summers.

672 Medieval and Renaissance Music 2 hrs.


673 Contemporary Music 2 hrs.

A survey of trends in European music and music of the Americas from about 1910 to the present day. Particular attention and emphasis placed on the music since 1920. Works by Stravinsky, Bartok, Hindemith, Copland, Villa-Lobos and others will be studied.

690 Graduate Recital 2 hrs.

Presentation of a full-length recital in the student’s area of concentration (applied music or composition). This course will also require an appropriate document relative to the repertoire performed. The
course will be evaluated by the faculty teaching in that area. By consent of instructor.

**Applied Music**

Qualified students may take graduate study in Applied Music for a total of four semester hours per semester in the major performance area and for a total of two semester hours in a minor performance area (one semester hour per semester). Requires sixty or 120 minutes per week of instruction and the necessary practice.

- **H36-H39** Harp
- **H56-H59** Piano
- **H76-H79** Organ
- **H96-H99** Voice
- **Z36-Z39** Stringed Instruments
- **Z56-Z59** Brass Instruments
- **Z76-Z79** Woodwind Instruments
- **Z96-Z97** Percussion Instruments

**Philosophy and Religion**

*Lawson, Head; Associate Professors Emblom, Grundler, and Siebert; Assistant Professors Ellin, Mullane, and Westphal*

**RELIGION**

500 **Studies in Patristic and Medieval Theology** 4 hrs.

A study of specific themes in patristic or medieval theological writings. Particular attention is given to the problems of origin, methodology, cultural context, and the historical significance of such themes and their changing treatment.

501 **Studies in Reformation and Post-Reformation Theology** 4 hrs.

A study of selected works of the Reformers and leading Protestant thinkers of the Post-Reformation period with regard to central themes: the knowledge of God, the nature of faith, scripture and tradition, the relation between philosophy and theology. Particular attention will be given to the relationship between Protestant orthodoxy and medieval scholasticism.

510 **Studies in Contemporary Jewish Thought** 4 hrs.

A study of selected works of leading Jewish thinkers in the 20th Century.

521 **Studies in Non-Western Religions** 4 hrs.

An examination of the contributions made by such Non-Western religions as Hinduism, Buddhism, and Islam toward the understanding of man as *homo religiousus*.
PHILOSOPHY

500 Studies in Medieval Philosophy 4 hrs.
Medieval philosophical thought from Augustine to Ockham.

501 Studies in History of Philosophy 4 hrs.
Topic to be announced. The topic selected may be either the concentrated study of an individual philosopher, or an identifiable philosophical school, or the historical examination of a philosophical problem or concept. Prerequisite: permission of the instructor.

510 Studies in Theory of Value 4 hrs.
An analysis of the value concepts as employed in the general theory of value, or in the value disciplines, ethics, political philosophy, and aesthetics.

520 Studies in Logic 4 hrs.
Selected topics in one or more of the following areas: foundations of logic and mathematics, meta-mathematics, set theory, modal and many-valued logics, inductive logic, formal semantics and linguistics, the history of logic. Prerequisite: two courses in logic (or their equivalent) and permission of the instructor.

521 Philosophy of Science 4 hrs.
Examination of the sciences from the point of view of their methods, presuppositions, and implications for philosophy. Prerequisite: one course in logic or its equivalent, or permission of the instructor.

530 Studies in Theory of Knowledge 4 hrs.
Selected problems in the theory of knowledge. The course focuses on the roles of reason and perception in knowing, and examines the problem of the external world. Prerequisite: permission of the instructor.

531 Studies in Metaphysics 4 hrs.
A study of selected topics from among typical metaphysical questions such as the mind-body problem. The course includes the examination of concepts such as reality, existence, being, substance, space, time, causality.

Physics

Bradley, Head; Professors Derby, Kruglak, and Nichols; Associate Professors Hardie, Miller, Oppliger; Assistant Professors Carley, Dotson, Hoyer, and Kusmiss

Open to Graduates and Upperclassmen

520 Analytical Mechanics 3 hrs.
The topics include statics, dynamics of a particle and of a rigid body. Lagrange's and Hamilton's equations are introduced. Vector methods are used frequently. Prerequisite: Physics 211, Math IV.
540 Fundamentals of Electricity and Magnetism 3 hrs.

This is a theoretical course providing a thorough investigation of electric and magnetic fields. The applications of the theories of Stokes and Gauss are emphasized, and Maxwell's equations are developed. Prerequisite: Physics 212, Math IV.

552 Applied Spectroscopy 3 hrs.

This is a combined class and laboratory course on methods of spectrographic analysis. The topics studied include the history of spectroscopy, the origin of line spectra, spectrographic instruments, and modern techniques of qualitative and quantitative analysis. Prerequisite: Physics 212, Physics 352, or consent of instructor.

560 Modern Physics I 4 hrs.

This course includes an introduction to quantum mechanics with selected applications, the one-electron atom, radioactive transitions, atomic shell structure, and atomic and molecular spectroscopy. A knowledge of differential equations is assumed. It is recommended for seniors. Prerequisite: Physics 212, Math III. Concurrently.

561 Modern Physics II 4 hrs.

This course is a continuation of Physics 560 and includes a study of nuclear physics including properties of nuclei, nuclear reactions and models, and the particles of physics. Prerequisite: Physics 560.

563 Solid State Physics 3 hrs.

This course is designed to acquaint the student with modern theories of the structure of solids. Included in the course are discussions on the symmetry properties of solids; bond structure; electrical and thermal properties of insulators, semi-conductors and metals; and theories of magnetism. Attention will be given to both theoretical and experimental aspects of these topics. Prerequisite: Physics 560, or consent of instructor.

Open to Graduates Only

612 Current Developments in Physics 2 hrs.

This course consists of demonstration-lectures and discussions of some of the outstanding developments in physics in recent years, such as nuclear energy and its applications, artificial radioactivity, elementary particles, solid state physics, high energy accelerators, semi-conductors and transistors and ultrasonics. Special attention will be given to make the course of practical value to high school teachers of science. Prerequisite: one year of General College Physics.

622 Quantum Mechanics 3 hrs.

This course is designed to provide a foundation of fundamental techniques of calculation for more advanced work in physics and chemistry of atoms, molecules, nuclei and solids. An attempt will be made to provide an understanding of the principles of the subject through the Schroedinger-Heisenberg equations as well as through the formal opera-
tor theory of Dirac. Discussing the simple and representative systems of the simple harmonic oscillator and the one electron atom. The course will confine itself almost solely to the non-relativistic approximation.

621 Statistical Mechanics 3 hrs.

This course deals with concepts of probability and statistics as applied to physics with particular emphasis on the kinetic theory of gases. Topics covered will include Laplace's formula, Stirling's formula, normal distribution law, Maxwell distribution of velocities, canonical ensemble, and Gibbsian ensemble.

630 Classical Mechanics 3 hrs.

This course deals with the Hamiltonian method of mechanics and develops the variational principles and the equations of Lagrange. Examples of point mass and rigid body problems are examined by these methods. The principles of relativity are introduced by establishing the Lorentz invariance requirement for the Hamiltonian. Canonical transformations, angle and action variables, and the theory of small vibrations, are introduced in a way that makes the historical bridge between classical and quantum mechanics.

662 Electricity and Magnetism 3 hrs.

This course deals with static and time-dependent electromagnetic fields and their interaction with matter. Radiation, wave motion, scattering, and relativity, are several of the topics in the latter part of the course. Vector analytical notation is used exclusively.

Political Science

Greenberg, Chairman; Professors Clark, Olton, Phillips, Plano, Stine and Weber; Associate Professors Batson, Kaufman, Kim, Klein and Ritchie; Assistant Professors Cochrane, McAnaw, and Richardson

Seminar topics will vary from semester to semester. Enrollment in successive semesters permitted. Schedule of classes will indicate credit to be given for courses designated as variable credit.

600 courses are open to graduates only

MAJOR AREAS

AMERICAN GOVERNMENT

506 Problems of American Government 3 or 4 hrs.

A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts to reach solutions to such problems. Significant issues such as agriculture, education, taxation, welfare, labor and business will be considered. The subject
matter will vary from semester to semester and students may repeat the course.

600 Seminar: State or Local Government 3 or 4 hrs.
Supervised study-research on questions of significance in (local) (state) government. Problems considered will vary from semester to semester. Students may repeat the course.

POLITICS

510 The Political Process of Government 5 hrs.
An analysis of political behavior in the United States with particular reference to the growth and internal dynamics of interest groups; the characteristics of the party system; the role of both groups and party in relation to public opinion and to the operation of the legislative, executive, and judiciary. Not open to students who have taken Political Science 310.

610 Seminar: U. S. Politics 3 or 4 hrs.
Analysis of political instruments, leadership, and techniques as exemplified in the United States political system. Students will pursue research projects. The course will give emphasis to either public policy formation, political parties, political behavior, or pressure groups and propaganda. The course may be repeated.

PUBLIC LAW

524 Constitutional Law and Civil Liberties 4 hrs.
A study of the interpretation of the United States Constitution as embodied in the opinions of the United States Supreme Court. The political and social situation giving rise to great constitutional controversies are studied in the context of the role of law and judges. Subject areas covered include national-state relations, judicial, legislative and executive power, with special attention to contemporary developments in civil liberties and civil rights.

526 Administrative Law and Public Regulation 4 hrs.
A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of government regulation and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determinations.

620 Seminar: Public Law 3 or 4 hrs.
Study and research on major topics of interest in the judicial process, administrative law, constitutional law, and civil liberties. Individual papers and reports will be presented. Topics considered will vary from semester to semester and students may repeat the course.
PUBLIC ADMINISTRATION

530 Problems of Public Administration 3 or 4 hrs.
Consideration of issues and problems of current interest in the field of public administration. This course is intended to provide advanced work for undergraduates and also to serve as an introduction to the field for graduate students without previous training in public administration. Prerequisite: for undergraduates, 330 or consent of instructor.

630 Seminar: Public Administration 3 or 4 hrs.
Study and research on selected major topics in public administration. Independent reports will be made. Subject matter will vary and the course may be repeated. Prerequisite: 330, 530 or consent of instructor.

COMPARATIVE GOVERNMENT

510 Problems of Foreign Political Systems 3 or 4 hrs.
Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated.

516 Governments of the Soviet Union & Eastern Europe 3 or 4 hrs.
The governmental organization and political structure of the Soviet Union and the States of Eastern Europe. Special attention is directed to the Communist Party and its relationship to the organization of the state. The educational and economic bases of the current system are stressed.

610 Seminar: Comparative Government 3 or 4 hrs.
Independent research and seminar presentation for each student are stressed. The topic and area of concentration may include Europe, Asia, Africa or Latin America and will vary from semester to semester. May be repeated.

INTERNATIONAL RELATIONS

550 Problems of International Relations 3 or 4 hrs.
An intensive introduction for seniors and graduate students who have had no previous work in the international field. The course surveys the subfields of international politics, law, organization, and foreign policy. Constitutes a prerequisite to any other 500 or 600 level international courses for such students. May not be taken by students who have had Political Science 250.

551 International Law and Organization 4 hrs.
Explores systems, methods, and agencies developed by states for meeting their common problems. Examines also the legal relations of nations in war and peace, international legal theory and institutions.
Emphasis is placed on the United Nations and regional political, military, and economic agencies. Prerequisite: political science 250 or 550.

650 Seminar International Relations or Foreign Policy 3 or 4 hrs.
Study and research on major topics of current international political, organizational, legal, or foreign policy significance. Individual papers and reports will be presented. The content of the course will vary from semester to semester and the subject to be studied will be indicated in advance. May be repeated.

POLITICAL THEORY

560 Comparative Political Ideologies 4 hrs.
A consideration of the functions of ideology in various political systems. Communism, Fascism, and Democracy are directly considered.

660 Seminar: Political Thought 3 or 4 hrs. Winter
An analysis of problems and subject matter considered by political philosophers and significant to the social sciences. Various issues arising in political thought, certain periods in history, or regions of the world may be considered. Subject considered will vary and the course may be repeated.

READING AND SPECIAL STUDIES

598 Studies in Political Science 1-1 hrs.
An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Prerequisite: Approval of Chairman of Department or instructor.

690 Scope and Method in Political Science 3 hrs.
A delineation of scope and substance of political science and its relationship to other social sciences. Major conceptions of methodology as embodied in current leading studies in the discipline; the present state of systematic theory in political science; and the role of value theory in political research.

Psychology

Ulrich, Head; Professors Asher, Fatzinger, Robertson, Kuffel, Kent, and Schmidt; Associate Professors Koronakos, Mountjoy and VonHolt; Assistant Professors Jochem, Lyon, Nangle and Thor.

Open to Graduates and Upperclassmen

510 Advanced General Psychology 3 hrs.
Lecture and discussion of general topics in the behavioral sciences. Not open to majors. Prerequisite: Psychology 200 (Service Course)
511 Seminar in Contemporary Problems  
Survey and discussion of selected topics in contemporary psychology. Prerequisite: 431. Not offered 1966-67.

512 Physiological Psychology  
A survey of the interrelationships of physiological and behavioral processes. Lecture and Lab. Prerequisite: 332, 333 and 431 or permission of instructor.

513 Animal Behavior  
A phylegetic approach to the study of behavior. Emphasis on unlearned behavior. Lecture and laboratory. Prerequisite: 332, 333 and 431 or permission of the instructor.

516 Conditioning and Learning  
A study of the various approaches to response measurement, experimental methodology, and theoretical interpretations of data in the area of conditioning and learning. Lecture and laboratory. Prerequisite: 332, 333 and 431 or permission of the instructor.

517 Psychology of Learning for Teachers  
An introduction to some of the basic principles of learning with particular emphasis on application. Not open to majors. Prerequisite: 200 (Service Course)

518 Sensory and Perceptual Processes  
A survey of sensory and perceptual phenomena with an emphasis on vision and audition. Lecture and laboratory. Prerequisites: 332, 333 and 431 or permission of the instructor.

530 Statistics for Education  
An introduction to basic statistical procedures and concepts. Primarily for students in education. Not open to majors. (Service Course)

510 Industrial Psychology  
Application of psychological principles to industry. An examination of employee selection, occupational analysis and classification, training, evaluation of performance, supervision, and working conditions. Prerequisites: 200 and 380.

512 Human Factors in Engineering  
A survey of research on the adaptation of equipment, products and environment to man’s use. Prerequisite: 9 hrs. of Psychology.

550 Criminal and Delinquent Behavior  
The application of behavior theory to the analysis of juvenile and adult criminal behavior.

571 Experimental Social Psychology  
Methodology of research with groups, with emphasis upon design and application. Prerequisites: 200 and 330 or equivalent.
595 History of Psychology 3 hrs.

The historical and philosophical foundations of contemporary American psychology.

597 Topical Seminar 2-4 hrs.

A survey in depth and discussion of a research topic of current interest. Prerequisite: Permission of instructor. May be repeated for credit.

598 Special Projects in Psychology 2-4 hrs.

This will be a readings course for the purpose of enabling graduate students to develop a background, knowledge and competency in specific areas.

Open to Graduates Only

613 Comparative and Physiological Psychology Lab 3 hrs.

Phylogenetic and ontogenetic comparisons of behavior with relation to structure and function. Lecture and laboratory.

614 Motivation and Emotion 3 hrs.

An introduction to the experimental analysis of psychological and physiological aspects of motives, incentives, and emotions.

617 Experimental Psychology of Learning 3 hrs.

An intensive study of selected topics with special emphasis upon the techniques employed in the experimental analysis of behavior in the human and infra-human organisms. Lecture and laboratory.

618 Experimental Psychology of Perception 3 hrs.

An examination of the current facts and theories of sensation and perception. Lecture and laboratory.

623 Advanced Abnormal Psychology 3 hrs.

Comprehensive study of pathological behavior patterns with consideration of experimental studies and theoretical approaches to causes and treatment.

624 Personality Theory 3 hrs.

Consideration and evaluation of the major theories of personality with emphasis on those theories having implications for counseling and therapy. An examination of experimental evidence and illustrative case studies.

634 Advanced Statistics 3 hrs.

Small sample theory and analysis of variance as applied to principles of experimental design.

635 Correlation Methods 3 hrs.

A study of simple, partial and multiple correlation techniques. An examination of non-parametrics will also be made.
641 Personnel Selection and Training 3 hrs.
Emphasis on the psychological principles and methodologies used in the selection, classification, and training of employees.

645 Psychology of Work 3 hrs.
Emphasis is placed upon an investigation of worker attitudes, morale, motivation, supervisory styles, and social interaction as determiners of employees productivity and job satisfaction.

660 Clinical Psychology 3 hrs.
A study of the role of the clinical psychologist. An examination of the current techniques of behavior assessment and behavior modification.

661 Psychological Counseling 3 hrs.
A consideration of some theories of psychological counseling and their relationships to evaluation, program planning, and technique. Individual and group counseling, and methods appropriate for different developmental levels, and kinds and degrees of psychopathological severity will be discussed.

662 Counseling Practicum 2 hrs.
Closely supervised practice in clinical counseling. Emphasis is placed on diagnostic evaluation, planning, technique, interpersonal factors.

663 Seminar in Clinical Assessment 2 hrs.

680 Advanced Tests and Measures 2 hrs.
Studies of principles of psychological test construction with particular emphasis on maximum performance tests.

681 Personality Measures (Non-projective) 2 hrs.
Studies of the principles of objective personality measurement, the findings of studies using these tests and their applications.

682 Individual Testing 2 hrs.
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC).

683 Individual Testing 2 hrs.
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Stanford-Binet Intelligence Scale, Form L-M.

684 Projective Techniques 3 hrs.
Survey of the theory of projective psychology and the basic concepts of projective measurement. Emphasis is placed on the administra-
tion, scoring, and interpretation of the Rorschach. The Revised Bender-Gestalt, Porteus Maze, TAT, and figure drawing tests are also considered. Supervised practice. Clinical and School Psychological Examiner only.

685 **Advanced Projectives** 3 hrs.

An intensified study of and supervised practice in Rorschach, Revised Bender-Gestalt, Porteus Maze, figure drawing, and other projective tests. Emphasis on selection and interpretation of projective test battery. Psychology 684 or permission of instructor. Clinical and School Psychological Examiner only.

696 **Systematic Psychology** 3 hrs.

An intensive study of current theories in psychology with emphasis on the philosophy of science and the logic of system building.

---

### Science Division

Professors G. Mallinson, J. Mallinson

Open to Graduates Only

610 **Science for Elementary Teachers** 2 hrs. Summer, Fall

Indicates the part played by science experiences in the development of children, acquaints teachers with types of science content and teaching procedures suitable in elementary education.

620 **The Teaching of Science** 2 hrs. Fall

Analyzes and evaluates the objectives of science as a high-school subject and considers modern practices with respect to such topics as classroom method, motivation, laboratory work, directed study and like problems.

690 **Science Education Seminar** 4 hrs.

Designed to provide an integrating experience for students studying in the Science Education Doctoral Program. The subject of the seminar will vary from one semester to the next. The student may repeat this course.

---

### Social Science Division

Professors Kercher and Stine; Assistant Professors Dykstra, Johnson and Fox

Open to Graduates and Upperclassmen

504 **Social Studies Seminar: England** 6 hrs.

A foreign study seminar especially designed for teachers and advanced college students in the social studies. It consists of regularly scheduled lectures and discussions on British life, institutions, social
problems and international relations. Following twelve days of travel in the British Isles, the seminar will be in formal session at Oxford University, England, for a period of about four weeks. After Oxford, the party will spend approximately a month touring several countries on the Continent. Graduate or undergraduate credit, up to a maximum of three semester hours in any one department may be distributed among economics, history, political science and sociology. Offered summer 1966.

506 Studies in the Non-Western World 2 hrs.

Gives teachers an awareness of social forces operating outside of Western Civilization. The workshop approach will be used to introduce students to such problems in Asia and Africa as industrialism, nationalism, self-government, social integration, population explosion, and the Western impact. The answers which two-thirds of the world are now giving to these problems cannot help but affect Western society. The ultimate objective is to provide teachers with selected resource materials and initial awareness of dynamic forces shaping over half the world.

Open to Graduates Only

600 Seminar in the Teaching of Social Studies 2 or 3 hrs.

Assists teachers of social studies to evaluate their philosophy and teaching methods in the light of accepted principles and current practices in social studies instruction. Students will be encouraged to do individual studies which will enable them to remedy their own weaknesses. Prerequisite: Open only to graduate students who are teaching or have taught social studies in the public schools.

606 Colloquium in International and Area Studies 3 hrs.

Papers and reports on topics such as population, urbanization, economic affairs, cultural change, political processes, historical evolution, technology, ideologies and others related to developing areas. Students are expected to share their findings with the members of the Colloquium and to acquire a general view of the topics covered.

504 Social Studies Seminar: East Africa 6 hrs.

This seminar is designed especially for upper-level university students majoring or minoring in social science and for social science teachers with a special interest in African affairs. Not offered 1966-67.
Sociology and Anthropology

Kercher, Head; Professors Bouma, Horton, Hunt, Maher, Manis; Associate Professors Barstow, Brawer, Eshleman, Garland, D. Lewis, Reid, Robin, Schellenberg, R. J. Smith; Assistant Professors Erickson, H. Lewis, and Walker.

Open to Graduates and Upperclassmen

500 History of Social Thought 3 hrs.
A critical survey of the social thinking of outstanding students of society from Plato to those of modern social science. Prerequisite: Soc. 200 or 600, or equivalent.

504 Sociological Theory 3 hrs.
A study of the major theoretical approaches in contemporary sociology. Prerequisite: 9 hours of sociology.

512 Seminar in Criminological Theory 2 hrs.
A critical analysis and evaluation of the leading theories concerning the causes of crime, the nature of criminal personality and the treatment of convicted offenders. Prerequisite: Soc. 312 or 514 or consent of instructor.

514 Juvenile Delinquency and the Community 3 hrs.
A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment and programs of prevention and control are covered. When possible, extensive use of community resource people is made. Prerequisite: Soc. 200 or 600, or equivalent.

515 Social Conflict 3 hrs.
An examination of causes of social conflict, strategies in pursuing conflict, and forms of conflict resolution in conflicts between individuals, between groups, and between nations. Prerequisite: 15 hours of sociology, political science and economics.

523 Contemporary Social Movements 3 hrs.
A study of the growth and place in contemporary society of selected social movements, including communism, fascism, Ku Klux Klan, the Townsend movement and the like. Prerequisite: Soc. 200 or 600, or equivalent.

524 Advanced Social Psychology 3 hrs.
A study of selected theoretical, methodological and substantive problems in social psychology. Prerequisite: Soc. 220 or equivalent.

525 Social Psychology of Education 3 hrs.
An intensive examination of student, teacher, and administrator roles. Particular attention will be given to the import of peers, family, and social structure. Prerequisite: Soc. 220.
531 Cultural Attributes of Personal Character 3 hrs.

The course involves a study of the following: Concepts of personality development that determine rearing and the learning process; range of permissiveness; cultural incongruencies; adult behavior subsequent to prescribed forms of rearing; personality and forms of association. Some attention will be given to potentials for research. The course is intended for students who have not had extensive training in social science. Not open to majors in anthropology or sociology. Prerequisite: one course in anthropology, sociology or psychology.

532 Culture and Personality 3 hrs.

An investigation of the interaction of culture and personality with particular attention to the role of culture as a force in the development of the individual. Prerequisite: 15 hrs. from anthropology, psychology, or sociology.

533 Changing Social Systems: Sub-Saharan Africa 2 hrs.

A study of the erosion of traditional tribal systems and the rise of secondary associations and social systems in sub-Saharan Africa resulting from the impact of European culture and other contemporary world influences. Prerequisite: Soc. 200 or 230 or consent of instructor.

534 Peasant Societies in Cross-Cultural Perspective 3 hrs.

A cross-cultural study of the development of peasant groups as a cultural type. Theoretical and substantive emphasis is on the cultural antecedents of peasant societies, the conditions promoting change from folk to peasant status, and the relationships between peasant groups and urban, national societies. Prerequisite: Soc. 330 and one of 334, 335, 336, 337 or consent of instructor.

535 The Anthropology of Religion 3 hrs.

An examination of anthropological theories and findings relating to the origin, nature, and function of religion as a universal category of culture. A scientific, cross-cultural consideration of religious beliefs and practices and their relation to concepts of the nature of the universe. The role of religion in revitalistic reactions to culture contact. Prerequisite: Soc. 231 or consent of instructor.

536 The Dynamics of Culture Change 3 hrs.

An inquiry into the dynamics of culture through a study of the principal theories of cultural change and their application to concrete situations such as the rise of complex civilizations and the reaction of non-western societies to contact with the West. Prerequisite: Soc. 200, or 230 or 600 or equivalent.

537 Politics in Primitive Societies 3 hrs.

Theoretical and descriptive analysis of the political aspect of primitive societies; the relation of politics to technological development, habitat, and social organization. Prerequisite: Soc. 330 or consent of instructor.
538 **Law in Primitive Societies**  
A study of law in primitive societies using the theory and method of comparative legal dynamics. The relation of law to the whole of culture; the function and evolution of law as revealed by the study of primitive societies ranging from simple to complex. Prerequisite: Soc. 330 or consent of instructor.

539 **Economic Anthropology**  
A thorough examination of the relationship between economic and anthropological theory with a strong emphasis on its applicability and usefulness for explaining the nature of specific economic relationships existing in selected primitive societies. Prerequisites: Soc. 231 and Economics 200 and/or the consent of the instructor.

540 **Cultural Ecology**  
A cross-cultural, comparative inquiry into the general and specific ways in which the interaction of society and environment determines the forms societies take, especially in respect to demography, territoriality, and the organization of kinship, politics, law, religion and economics. Prerequisites: Soc. 230 and 251 or consent of instructor.

541 **Field Methods in Archeology**  
Instruction in archeological field methods with particular attention to prehistoric cultural developments and ecological relationships as these appear in the process of excavation, compilation of field data sheets and in classification of artifacts.

545 **Advanced Area Studies**  
An intensive study of the cultures of various world areas such as Japan, Philippines, Caribbean, East Africa or others of similar significance. Area specialization will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. The subject for any particular semester will be indicated in the schedule of classes. Prerequisite: Soc. 231 or consent of instructor.

549 **Anthropology of Education**  
A study of education as the process which transmits the culture of one generation of a society to the next. Particular attention is given to education in primitive and peasant societies generally lacking formal institutions of education. Prerequisite: Soc. 200 or 600.

554 **Sociological Analysis of Population**  
Applications of selected sociological theories to analyze and interpret population characteristics and processes such as size, growth, social structure, and social change. Prerequisite: 9 hours of sociology or permission of the instructor.

556 **Social Stratification**  
An analysis of the structuring of societies along social class and caste lines. Emphasis is placed on the class structure of the United
States and its implications for educational, occupational and political policies. Prerequisite: Soc. 200 or 600 or consent of instructor.

558 Social Forces in Underdeveloped Areas 3 hrs.
An examination of the social factors which influence the growth of industrialization in underdeveloped areas. These factors include cultural tradition, social class stratification, and the problems involved in a shift from rural to urban residency. Case materials from private business enterprises, missionary and educational ventures. U.S. Foreign Aid projects included. Prerequisite: Soc. 200, 330 or 600.

560 Principles of Social Work 3 hrs.
A course designed for students without social work experience. It constitutes a general introduction to the basic principles and processes of social case work and social group work. Prerequisite: minimum of 5 semester hours of sociology.

572 Community Agency Resources 2 hrs.
A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapists, guidance counselors, teachers, etc.

573 The Sociology of Political Behavior 3 hrs.
Systematic sociological theory and research applied to the study of American political behavior, including such topics as power, decision making, leadership, and communications. Prerequisite: 6 hours of sociology or consent of instructor.

574 Sociology of Religious Institutions 2 hrs.
A study of the social role of religious institutions and beliefs with particular reference to the United States; the relation between religions and other aspects of society. The course considers social factors affecting the development of different types of religious institutions and the influence of religion on American society. Prerequisite: Sociology 200 or 600.

575 Industrial Sociology 3 hrs.
A study of human relations in business and industry; the functioning of informal groups and the varying roles of leadership; problems of depersonalization, of worker morale and output, and of labor-management relations. Prerequisite: Soc. 200 or 600.

576 Sociology of Education 2 hrs.
The classroom as a social situation analyzed in terms of the interaction between teacher-student and student-student. The educative process as a function of the interpersonal relations among teachers and between teachers and administrators. The school as a social system as it affects and is affected by the community in which it is located and society at large. Prerequisite: Soc. 200 or 600, or equivalent.
577 Comparative Institutional Studies 2 hrs.
A comparative study of the structure and the functioning of selected aspects of culture in selected counties or areas and America. The courts, the educational system, the welfare state, class stratification, correctional institutions, political organization and the basic structure of government are considered. Prerequisite: Soc. 200 or 600, or equivalent.

578 Social Structure of the Soviet Union 3 hrs.
A sociological analysis of contemporary Soviet society focusing on the patterns and functions of its basic institutions—the family, government, education, and industry. Consideration will also be given to the existing stratification system in terms of class formation and distribution of power. Prerequisite: Soc. 200, 330 or 600, or consent of instructor.

579 Social Structure and Social Change in Japan 2 hrs.
Introduction to Japanese society, focusing upon the contemporary processes of industrialization and urbanization and their impact upon Japanese family life, village organization, urban community, class structure and personality. Prerequisite: Soc. 200 or 600 or equivalent.

580 Introduction to Social Statistics 3 hrs.
An introduction to statistical reasoning with particular reference to social science research. Views statistics as an aspect of scientific inquiry and considers problems of analysis and interpretation of typical social science data. No prerequisite required but some background in algebra is recommended.

582 Introduction to Social Research 3 hrs.
An introduction to the basic methods of empirical research in sociology. Techniques and theory of research design, formulating and testing hypotheses, sampling, collection, analysis and interpretation of data are studied. Prerequisite: 9 hours of sociology.

592 Family Life Education and Counseling 2 hrs.
Provides the student with a working knowledge of the methods and materials appropriate in the school, the church and other social situations, for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: Soc. 200 or 600, or consent of instructor.

598 Readings in Sociology 1-4 hrs.
Offers graduate students with good scholastic records an independent program of study, arranged in consultation with the instructor. Prerequisite: Honors Program, or consent of the Head of the Department.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>Social Dynamics of Human Behavior</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Open to graduates only</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The concepts of sociology, cultural anthropology and social psychology essential to understanding human development and social behavior are systematically explored and integrated. The student is taught how to assess the concrete social situations in which he finds himself, and in which he observes other people from day to day. This course is not open to those who have had a foundation course in sociology.</td>
<td></td>
</tr>
<tr>
<td>601</td>
<td>Advanced General Sociology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>A comprehensive survey of trends in the major fields of sociology. Prerequisite: Open only to graduate students in sociology.</td>
<td></td>
</tr>
<tr>
<td>604</td>
<td>Seminar in Sociological Theory</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>An advanced, intensive study of certain selected theoretical topics of contemporary significance. Prerequisite: One course in social theory.</td>
<td></td>
</tr>
<tr>
<td>605</td>
<td>Seminar in Role Theory</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>An examination of various role theory formulations and their usefulness in understanding social behavior. Also, an overview of research methods and findings in the area of role theory. Prerequisite: Soc. 220, 504 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>610</td>
<td>Social Pathology and Personal Deviation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>A study of the social aspects of personal deviation. Subject-matter would include consideration of the alcoholic, the drug addict, the marginal man and the sexually maladjusted. Course considers deviate behavior in light of social background, causative factors and possible therapy. Prerequisite: Soc. 200 or 600, or equivalent.</td>
<td></td>
</tr>
<tr>
<td>612</td>
<td>Seminar in Corrections and Penology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Study of correctional institutions, probation, parole, and other means of dealing with criminal behavior. Prerequisite: Soc. 200 and 312.</td>
<td></td>
</tr>
<tr>
<td>614</td>
<td>Seminar in Race Relations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Advanced study of race relations problems and trends. Prerequisite: Soc. 200 and 314.</td>
<td></td>
</tr>
<tr>
<td>615</td>
<td>Techniques of Intercultural Adjustment</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>A study of intercultural processes of adjustment involving different racial, national and religious groups. The factors giving rise to present-day conflict situations are examined and special emphasis is given to techniques of adjustment through individual and community action. Prerequisite: Soc. 200 or 600, or equivalent.</td>
<td></td>
</tr>
<tr>
<td>616</td>
<td>Seminar in Social Problems</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>A detailed study of a social problems area through student reports and seminar discussion. Instructor will select specific topic. Course is</td>
<td></td>
</tr>
</tbody>
</table>
intended to provide intensive joint exploration of significant sociological issues.

622 Publics and Propaganda 3 hrs.
A systematic analysis of the nature, composition and etiology of publics and related phenomena such as masses and interest groups. Also, it will involve an exploration of propaganda techniques and research. Prerequisite: 582 or consent of instructor.

624 Primary Group Dynamics 2 hrs.
A study of the forces that influence the outcomes of primary group activity. The effects of diverse personalities, of varying leadership roles, of person-to-person interaction and of the responses of the group as a whole are considered. Principles of effective group dynamics are practiced, as well as observed and studied, in the educational setting. Prerequisite: Soc. 200 or 600, or equivalent.

663 Integration of Education and Social Work Techniques 3 hrs.
This course is a specialized social work course restricted to students in preparation for teaching the adult blind. It is designed to afford an opportunity for a discussion of behavior and the effect of behavior on learning and of counseling and guidance as aspects of a sound teaching relationship. Field observations and some limited work with blind clients will give the student a chance to present realistic situations in group discussion as problems in learning. Prerequisite: consent of instructor.

673 Formal Organization 3 hrs.
This course analyzes the nature of large-scale, formal organizations, concentrating on their structure, types of organizational goals, processes of control, authority and leadership, and the relationship of organizations to their social environment. Examples of organizations will be selected from different areas such as education, government, medicine, science, leisure and industry. Prerequisite: 9 hours of sociology.

674 Seminar in Political Sociology 3 hrs.
Intensive analysis of selected areas of political behavior in the United States and abroad, within the framework of systematic sociological theory and research. Different topics will be considered each semester the course is offered. Topics would include: political socialization, political roles and organization, decision making in the political process, political movements, political communication and alienation and political behavior. Students may repeat the course for additional credit. Prerequisite: Soc. 573.

675 Sociology of Law 3 hrs.
An examination of legal organization, the legal profession and legal norms in the United States and other Western societies. Emphasis will be placed upon the relationship between the legal system and society in which it functions. Prerequisite: Soc. 200 or 600.
676 The School and the Community 2 hrs.

The school as a social institution in the American community. Interaction between the school and the other basic social institutions and their values. The sociological significance of community structures, processes and problems for school-community relationships.

677 Seminar in Sociology of Education 3 hrs.

Deals with selected sociological aspects of education. Among the topics that might be selected in any given semester are: 1. sociological theory and education, 2. social class and education, 3. social control and education, 4. socialization in the school system, and 5. sociological problems in the education of exceptional children. Prerequisite: Soc. 200, 576 or equivalent.

678 Seminar in Industrial Society in the Far East 2 hrs.

Trends and problems in growth of industrial society in China, Japan, Korea, and Okinawa. Relation of industry change to change in other social institutions. Comparison of social organization under Communist and non-Communist systems. Prerequisite: 9 hours of sociology or consent of instructor.

680 Seminar in Research Methodology 2 hrs.

Examine the assumptions, logic and techniques of sociological research, with examples from current research reports and student projects. Prerequisite: One course in research methods.

683 Supervised Research 2 hrs.

All entering graduate students must register for this course. Purpose is to assist student in selecting, formulating, designing, conducting and reporting the thesis or essay. Includes continuing reports by students of their research progress. Those who plan to do a thesis may, with permission of the instructor and the graduate adviser, continue with Graduate Studies 700 Thesis in Sociology.

685 Advanced Social Statistics 3 hrs.

A study of advanced statistical techniques of special importance to sociology. The emphasis is on procedures designed for analyzing problems involving a large number of variables. Included among the topics studied are multiple and partial correlation and regression, analysis of variance and factor analysis. Prerequisite: Soc. 580 or equivalent.

690 Seminar in Marriage and the Family 3 hrs.

Advanced study of the interactional or institutional aspects of marriage and the family. Emphasis upon any one or two of the following areas during the semester: the social psychology of the family; the family and social structure; comparative family systems; current family research; family problems; social change and the family; or pertinent issues within the sociology of the family. Can be repeated without duplication of material. Class sizes limited to 15 students. Prerequisite: One course in the family or consent of instructor.
692 Family Development 2 hrs.

The family is analyzed over its entire cycle from marriage to the death of the spouses with special attention devoted to the developmental tasks each family member and the family as a unit must accomplish for family adjustment. The course is designed to provide students who may work with families in one capacity or another with a theoretical framework for diagnosing sources of maladjustment. Prerequisites: Soc. 200 or 600 or consent of instructor.

Speech

Brown, Head; Professors Becker and York; Associate Professors Buys, Grandstaff, Helgeson and Kuykendall; Assistant Professors Bowen, Crane and Smith.

Open to Graduates and Upperclassmen

510 Studies in Oral Interpretation 3 hrs.

Projects in reading and analysis of literature designed to intensify the student's application of the theory and principles of oral interpretation.

520 Studies in Theatre 3 hrs.

Selected study within the range of the several aspects of theatre including backgrounds, theory and production. Emphasizes concepts rather than skills.

530 Studies in Public Address 3 hrs.

Selected areas of detailed study within the total range of public address.

531 Public Speaking 3 hrs.

The intensive study of speech organization, audience adaptation, and delivery. Includes practice in speaking. Research project required.

532 Persuasion 3 hrs.

Study of factors of human behavior and their ethical implications as related to oral communication. Class activities include research, experimentation and discussion.

540 Studies in Broadcasting 3 hrs.

Analysis in depth of specific issues affecting broadcasting.

544 Broadcasting Regulations 3 hrs.

The role of self-regulation and governmental regulation of the broadcasting industry.

545 Broadcasting Criticism 3 hrs.

Analysis and criticism of programs and programming. Study of writings of major radio and television critics.
560 Studies in Speech Education
Selected studies in background, methods, materials and procedures in any one of the several speech areas.

561 Teaching Speech in the Elementary School
Examination of the linguistic development of pre-school and elementary school children, the functions of language, study of the nature of the emotional and physical development of children as related to symbol using behaviors, study of materials and methods for effecting desired behaviors in children's thinking, communicating and enjoyment.

562 Teaching Speech in the Secondary School
An examination of the cultural objectives of our time and a determination of the role oral communication plays in a democracy, study of the communication process by model building, examination of the model in order to determine what objectives are related to the oral communication curriculum. A study is made of curriculum content, methods, materials and systems of evaluating the teacher's behavioral objectives.

564 Creative Dramatics for Children
Study of the principles, materials and techniques of dramatics with children as a classroom activity in elementary grades. Observation of demonstration groups. Emphasizes creative dramatics and includes the creative approach to formal dramatics.

Open to graduates only

600 Problems in Listening
Explores the role of listening in learning. Research in the field is examined and appraised. Listening tests are taken and discussed. Class members design listening projects or research projects. Focus increases sensitivity to the impact of speech.

610 Seminar in Oral Interpretation
Oral interpretation as related to techniques and materials of individual and group readings. Provides opportunity to explore problems of various forms and practices in oral interpretation.

620 Seminar in Theatre
Provides study of broad inter-related aspects of historical and contemporary theatre. Topics include acting, directing, design (scenery and costume) and criticism.

630 Seminar in Public Address
Explorations into rhetoric, public address, argumentation, and discussion developed from historical and topical perspectives.
631 Group Problem Solving

Study and practice of the dynamics of groups of various kinds, as well as the methods of arriving at group decision. Includes the understanding of leader and participant roles. Occasionally offered as a workshop course.

640 Seminar in Broadcasting

Exploration of topics and problems in broadcasting, such as the evolution of radio and television, or the services and responsibilities of the media to non-specialists.

660 Seminar in Speech Education

Each student selects an area of interest which he pursues independently during the term and reports his findings periodically to his class and instructor. In addition, the history of the profession, ethics and professional practices, research in psychology and speech related to teaching speech, are studied.

662 School Assemblies and Community Programs

Designed for teachers, administrators, and others who have a role in planning and presenting programs. Stresses the values obtained from assemblies and programs, and deals with organization, planning, presenting, and evaluating such programs. Includes gathering of ideas and materials, as well as experience in planning and participating in programs.

664 Seminar in Creative Dramatics

Considers relationships of theory, materials and techniques of Creative Dramatics to child development and creative teaching in the elementary school.

Speech Pathology and Audiology

Robinson, Head; Professor Van Riper; Associate Professors Erickson, Bate, Platt, Richards and Willis

550 Voice and Speech Science

This course, for majors in speech pathology and audiology, deals with the embryology and neurology of the speech and hearing mechanism as well as with pitch, intensity, duration and wave composition characteristics of speech signals. Prerequisite: Physiological Processes of Speech (Speech 304).

552 Stuttering and Allied Disorders

Designed to provide the student with more detailed knowledge of the nature, causes, and development of stuttering and other serious functional speech disorders. The literature is surveyed, and the various methods for treating these disorders are described in details.
555 Basic Procedures in Audiology 4 hrs.
A study of the fundamentals of audiology and audiometry. Includes coverage of physics, anatomy, physiology and pathology of hearing; administration and interpretation of hearing tests; and rehabilitation techniques. Observation of and practice in hearing testing included.

556 Aural Rehabilitation 2 hrs.
In this course the principles of speechreading, auditory training and general management are studied and demonstrated.

558 Organic Speech Disorders in Children 2 hrs.
This course is concerned with the diagnosis and treatment of the speech disorders of organic origin, with emphasis on those found in children: cerebral palsy, cleft palate, language disorders due to brain damage.

Open to graduates only

650 Seminar in Speech Pathology 2-10 hrs.

A. Speech Science (2 hrs.)
This course considers instrumentation, procedures and techniques employed in perceptual, physical and physiological analyses of normal voice and speech. Pertinent literature systematically reviewed. Prerequisite: Voice and Speech Science (Speech Pathology and Audiology 550).

B. Voice and Articulation (2 hrs.)
Selected aspects of voice and articulation disorders are critically investigated through the review of relevant literature and through individual study projects. Prerequisite: Voice and Articulation (undergraduate) (Speech Pathology and Audiology 252).

C. Stuttering (2 hrs.)
Therapeutic procedures and methodologies are analyzed and evaluated with reference to major theories of stuttering and pertinent research literature. Prerequisite: Stuttering and Allied Disorders (Speech Pathology and Audiology 552).

D. Cleft Palate and Laryngeal Disorders (2 hrs.)
This course systematically surveys clinical and research literature in the area of cleft palate and laryngectomy problems with specific reference to interprofessional clinical management procedures. Prerequisite: Organic Speech Disorders (Speech Pathology and Audiology 558).

E. Language Disorders (2 hrs.) Winter
Factors which affect language development and symbolic behavior are studied in terms of etiology, symptomatology, and treatment.

652 Seminar in Audiology 2-6 hrs.

A. Pediatric Audiology (2 hrs.)
This course deals with audiological procedures and techniques peculiar to young children.
B. Geriatric Audiology (2 hrs.)

This course considers the audiological problems of the aged in terms of diagnosis and rehabilitation.

C. Hearing Aids and Residual Hearing (2 hrs.)

Amplification as a rehabilitative measure is studied. Included is a study of the mechanical aspects of hearing aids, the process of counseling and training the hearing aid user, and hearing aid evaluation procedures.

653 Diagnosis and Appraisal 3 hrs.

This course is intended to provide the basic information needed in the examination of persons with speech and hearing disorders. Interviewing techniques, examination procedures in assessing disabilities, etiology and prognosis for voice, articulation, rhythm, language and hearing disorders are the basic content of the course. Experience in the outpatient clinic is provided.

654 Clinical Methods in Speech Correction 2 hrs.

Designed for advanced students and practicing speech therapists, this course provides supervised therapy experiences with a variety of speech disorders. Emphasis will be placed upon the intensive study, application and evaluation of diagnostic and therapeutic procedures.

655 Advanced Procedures in Audiology 4 hrs. Winter

An advanced course in Audiology dealing with hearing disorders and medical techniques of treatment; the significance of certain hearing tests in otologic diagnosis; and a study of hearing aids and hearing aid evaluations. Clinical experience in hearing evaluation also included. Prerequisite: Basic Procedures in Audiology (Speech Pathology and Audiology 555).

656 Speech Therapy 2 hrs. Fall

This course includes a historical and philosophical survey of the profession of speech pathology as it is practiced in different settings and as it relates to other helping professions. Theories and treatment of major communication disorders are studied systematically with particular reference to interprofessional cooperation in therapeutic processes. Not open to majors in speech pathology except with consent of instructor.

657 Organic Speech Disorders in Adults 2 hrs.

This course is concerned with the diagnosis and treatment of the speech disorders of organic origin, with emphasis on those found in adults: aphasia, laryngectomy, neurologically-based voice disorders.

658 Speech Pathology 3 hrs. Fall

In this course the basic pathology of the disorders of communication is examined in terms of servo-system theory, learning theory, and psycho-pathology.
This course is intended to acquaint the student with the specific problems involved in the organization and administration of speech and hearing services in various clinical settings; hospital clinics, college speech and hearing clinics, special education programs and rehabilitation centers.