PREMEDICINE/PREDENTISTRY

Majors:

- Bachelor of Science, Predentistry (p. 1)
- Bachelor of Science, Premedicine (p. 3)

Minor:

- Medical Humanities (p. 4)

The Bachelor of Science with a major in premedicine (MED) or predentistry (DEN) is an interdisciplinary curriculum of study. It is distinctively designed to provide a science-based, diverse education as a preparation for admission to any of the health professional schools including medical, dental, physician assistant, optometry, pharmacy, veterinary, and chiropractic. Courses in biology, chemistry, mathematics, and physics comprise the science core of the major. A substantial complement of humanities and social sciences courses are also required. Within this framework the curriculum is flexible and can be tailored to suit personal interests. During the first two years, students enroll in courses appropriate for entry into professional schools while they also fulfill basic University requirements.

Admission to professional schools depends upon many factors in addition to the curriculum or major. Academic standing, performance on standardized examinations, practical experience relevant to the profession of interest, and adherence to application procedures are all important. The Premedical Programs Office addresses these factors through a comprehensive approach to pre-health care education.

Along with the administration of the DEN and MED majors, the Premedical Programs office acts as the focal point for all matters related to admission to any allied health care professional school. It is an information clearing house, functions as a liaison with professional schools, and coordinates the application process. The Premedical Programs Office also coordinates a number of internships, health related student organizations, and community based clinical opportunities for students. Students in any major planning to apply to professional schools are urged to maintain a close relationship with this office.

The University automatically enrolls entering premedical or predental majors into special orientation classes, and identifies them to the Premedical Programs office. Members of the Premedical/Predental Advisory Committee advise these students. However, advising services are available to all preprofessional students regardless of their major. Students in other majors may elect to have committee members serve as their secondary advisors; such students should identify themselves to the Premedical Programs office.

In addition to providing counseling, Premedical Programs offers a seminar series, clinical opportunities, grants for health care related experiences, and scholarships. Since admission to professional schools is highly selective, the program monitors the academic progress of MED/DEN majors, and provides feedback at the end of the first and second year. Transfers to other majors, particularly to science majors, can usually be accommodated during the first two years without affecting normal progress towards graduation.

Premedical/Predental Advisory Committee
Kathleen C. Scheltens, Director
Madeleine DeBeer (Chemistry), Assistant Director

Ahoujja (Physics), Burky (Biology), Crecelius (Health and Sport Science), Hansen (Biology), Johnson (Chemistry), Kango-Singh (Biology), Krane (Biology), Lopper (Chemistry), Mammana (Chemistry), Nielsen (Biology), Pitychouts (Biology), Rhoads (Biology), Simon (Mathematics), Singh (Biology), Smith (Physics), Sun (Biology), S. Swavey (Chemistry), T. Williams (Biology), S. Wright (Biology)

Bachelor of Science, Predentistry (DEN) minimum 120 hours

<table>
<thead>
<tr>
<th>Common Academic Program (CAP)</th>
<th>12 cr. hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year Humanities Commons</td>
<td>12 cr. hrs.</td>
</tr>
<tr>
<td>HST 103 The West &amp; the World</td>
<td>3 cr. hrs.</td>
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<tr>
<td>REL 103 Introduction to Religious and Theological Studies</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>PHL 103 Introduction to Philosophy</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>ENG 100 Writing Seminar I</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>Second-Year Writing Seminar</td>
<td>0-3 cr. hrs.</td>
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<tr>
<td>ENG 200 Writing Seminar II</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>CMM 100 Principles of Oral Communication</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>Social Science</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>SSC 200 Social Science Integrated</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>Arts</td>
<td>3 cr. hrs.</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>7 cr. hrs.</td>
</tr>
<tr>
<td>Crossing Boundaries</td>
<td>up to 12 cr. hrs.</td>
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<tr>
<td>Faith Traditions</td>
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<tr>
<td>Practical Ethical Action</td>
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<tr>
<td>Inquiry</td>
<td></td>
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<tr>
<td>Integrative</td>
<td></td>
</tr>
<tr>
<td>Advanced Study</td>
<td></td>
</tr>
<tr>
<td>Philosophy and/or Religious Studies (6 cr. hrs.)</td>
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<tr>
<td>Historical Studies (3 cr. hrs.)</td>
<td></td>
</tr>
<tr>
<td>Diversity and Social Justice</td>
<td>3 cr. hrs.</td>
</tr>
</tbody>
</table>
Major Capstone

1 The credit hours listed reflect what is needed to complete each CAP component. However, they should not be viewed as a cumulative addition to a student’s degree requirements because many CAP courses are designed to satisfy more than one CAP component (e.g., Crossing Boundaries and Advanced Studies) and may also satisfy requirements in the student’s major.
2 May be completed with ASI 110 and ASI 120 through the Core Program.
3 May be completed with ENG 100A and ENG 100B, by placement.
4 May be completed with ENG 114 or ENG 198 or ASI 120.
5 Must include two different disciplines and at least one accompanying lab.
6 U.S. History AP credit will not satisfy this requirement.
7 May not double count with First-Year Humanities Commons, Second-Year Writing, Oral Communication, Social Science, Arts, or Natural Sciences CAP components, but may double count with courses taken to satisfy other CAP components and/or courses taken in the student’s major.
8 The course or experience is designed by faculty in each major; it may, or may not, be assigned credit hours.

<table>
<thead>
<tr>
<th>Major Requirements</th>
<th>63</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfies CAP Mathematics and CAP Natural Science</td>
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</tr>
<tr>
<td>BIO 151 Concepts of Biology I: Cellular &amp; Molecular Biology &amp; Concepts of Biology Laboratory I: Cellular &amp; Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIO 152 Concepts of Biology II: Evolution &amp; Ecology &amp; Concepts of Biology Laboratory II: Evolution &amp; Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHM 123 General Chemistry &amp; General Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHM 124 General Chemistry &amp; General Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHM 313 Organic Chemistry &amp; Organic Chemistry Laboratory</td>
<td>4</td>
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<tr>
<td>CHM 314 Organic Chemistry &amp; Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHM 420 Biochemistry</td>
<td>3</td>
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<tr>
<td>CHM 420L Biochemistry Lab for the Medical Sciences</td>
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</tr>
<tr>
<td>MTH 148 Introductory Calculus I</td>
<td>6</td>
</tr>
<tr>
<td>MTH 149 Introductory Calculus II or MTH 168 Introduction to Statistics &amp; MTH 169 Analytic Geometry &amp; Calculus I &amp; Analytic Geometry &amp; Calculus II</td>
<td>6</td>
</tr>
<tr>
<td>PHY 201 College Physics I or PHY 202 College Physics II</td>
<td>6</td>
</tr>
<tr>
<td>&amp; PHY 206 General Physics I - Mechanics &amp; General Physics II - Electricity &amp; Magnetism &amp; General Physics III - Thermodynamics, Waves, and Fluids</td>
<td>6</td>
</tr>
<tr>
<td>&amp; PHY 207 &amp; PHY 208</td>
<td>6</td>
</tr>
<tr>
<td>PHY 201L College Physics Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>PHY 202L General Physics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MED 480 Pre-Medicine Capstone (Satisfies CAP Major Capstone)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one course from:
- MTH 207 Introduction to Statistics
- MTH 367 Statistical Methods I
- PSY 216 Elementary Statistics

Select five science courses, two with accompanying laboratories, from:
17
- BIO 309 Comparative Anatomy of the Vertebrates & 309L and Comparative Anatomy Laboratory
- BIO 312 General Genetics & 312L and Genetics Laboratory
- BIO 403 Physiology I & 403L and Physiology Laboratory I
- BIO 404 Physiology II
- BIO 411 General Microbiology & 411L and General Microbiology Laboratory
- BIO 415 Neurobiology
- BIO 427 Immunology
- BIO 439 Analysis & Interpretation of Biological Data
- BIO 440 Cell Biology & 440L and Cell Biology Laboratory
- BIO 442 Developmental Biology & 442L and Developmental Biology Laboratory
- BIO 445 Evolution & Development
- BIO 460 Introduction to Bioinformatics
- BIO 462 Molecular Biology
- BIO 466 Biology of Infectious Disease
- BIO 470 Cancer Biology
- BIO 475 Human Anatomy & 475L and Human Anatomy Laboratory
- BIO 480 Principles of Microscopy & 480L and Principles of Microscopy Laboratory
- CHM 201 Quantitative Analysis & 201L and Quantitative Analysis Laboratory
- CHM 302 Physical Chemistry
- CHM 427 Medicinal Chemistry
- CHM 451 General Biochemistry I
- CHM 452 General Biochemistry II

Breadth

- ASI 150 Introduction to the University Experience | 1 |
- Electives | 10 |
- ENG Elective | 3 |

Select one course from: (Satisfies CAP Practicial Ethical Action and Adv Studies in PHL or REL)

| PHL 312 Ethics |
| PHL 315 Medical Ethics |
| REL 365 Christian Theology and Environmental Ethics |
| REL 367 Christian Ethics & Health Care Issues |

Social and Behavioral Sciences (Includes CAP Social Science) | 12 |

Total Hours to total at least | 120 |

1 Well qualified students are advised to take MTH 168-MTH 169.
2 Well qualified students are advised to take PHY 206-PHY 207-PHY 208 lecture sequence with PHY 201L and PHY 202L.
The elective courses must be directly related to the primary field of interest.

Only general elective courses can be taken under Grading Option Two.

Courses in graphic design, studio art, or performing arts are recommended.

Select from any 300 or 400 level ENG course.

Bachelor of Science, Premedicine (MED) minimum 120 hours

Common Academic Program (CAP)  
First-Year Humanities Commons 2  
HST 103 The West & the World 12 cr. hrs.  
REL 103 Introduction to Religious and Theological Studies  
PHL 103 Introduction to Philosophy  
ENG 100 Writing Seminar I  
Second-Year Writing Seminar 4 0-3 cr. hrs.  
ENG 200 Writing Seminar II  
Oral Communication 3 cr. hrs.  
CMM 100 Principles of Oral Communication  
Mathematics 3 cr. hrs.  
Social Science 3 cr. hrs.  
SSC 200 Social Science Integrated  
Arts 3 cr. hrs.  
Natural Sciences 5 7 cr. hrs.  
Crossing Boundaries up to 12 cr. hrs.  
Faith Traditions  
Practical Ethical Action  
Inquiry  
Integrative  
Advanced Study  
Philosophy and/or Religious Studies (6 cr. hrs.)  
Historical Studies (3 cr. hrs.) 6  
Diversity and Social Justice 7 3 cr. hrs.  
Major Capstone 8 0-6 cr. hrs.  

1 The credit hours listed reflect what is needed to complete each CAP component. However, they should not be viewed as a cumulative addition to a student’s degree requirements because many CAP courses are designed to satisfy more than one CAP component (e.g., Crossing Boundaries and Advanced Studies) and may also satisfy requirements in the student’s major.

2 May be completed with ASI 110 and ASI 120 through the Core Program.

3 May be completed with ENG 100A and ENG 100B, by placement.

4 May be completed with ENG 114 or ENG 198 or ASI 120.

5 Must include two different disciplines and at least one accompanying lab.

6 U.S. History AP credit will not satisfy this requirement.

7 May not double count with First-Year Humanities Commons, Second-Year Writing, Oral Communication, Social Science, Arts, or Natural Sciences CAP components, but may double count with courses taken to satisfy other CAP components and/or courses taken in the student’s major.

8 The course or experience is designed by faculty in each major; it may, or may not, be assigned credit hours.

Major Requirements 63

Satisfies CAP Mathematics and Natural Science  
BIO 151 Concepts of Biology I: Cellular & Molecular Biology  
BIO 151L Concepts of Biology Laboratory I: Cellular & Molecular Biology  
BIO 152 Concepts of Biology II: Evolution & Ecology  
BIO 152L Concepts of Biology Laboratory II: Evolution & Ecology  
CHM 123 General Chemistry  
CHM 123L General Chemistry Laboratory  
CHM 124 General Chemistry  
CHM 124L General Chemistry Laboratory  
CHM 313 Organic Chemistry  
CHM 313L Organic Chemistry Laboratory  
CHM 314 Organic Chemistry  
CHM 314L Organic Chemistry Laboratory  
CHM 420L Biochemistry Lab for the Medical Sciences  
MTH 148 Introductory Calculus I  
MTH 148L Introductory Calculus Laboratory I  
MTH 149 Introductory Calculus II  
MTH 149L Introductory Calculus Laboratory II  
MTH 168 Analytic Geometry & Calculus I  
MTH 168L Analytic Geometry & Calculus Laboratory I  
MTH 169 Analytic Geometry & Calculus II  
MTH 169L Analytic Geometry & Calculus Laboratory II  
PHY 201 College Physics I  
PHY 201L College Physics Laboratory I  
PHY 202 General Physics  
PHY 202L General Physics Laboratory  
PHY 206 General Physics I - Mechanics  
PHY 207 General Physics II - Electricity & Magnetism  
PHY 208 General Physics III - Thermodynamics, Waves, and Fluids  
PHY 201L College Physics Laboratory I  
PHY 202L General Physics Laboratory  
MED 480 Pre-Medicine Capstone (Satisfies CAP Major Capstone)
Select one course from:

- MTH 207 Introduction to Statistics
- MTH 367 Statistical Methods I
- PSY 216 Elementary Statistics

Select five science courses, two with accompanying laboratories, from:

- BIO 309 & 309L Comparative Anatomy of the Vertebrates and Comparative Anatomy Laboratory
- BIO 312 & 312L General Genetics and Genetics Laboratory
- BIO 403 & 403L Physiology I and Physiology Laboratory I
- BIO 404 Physiology II
- BIO 411 & 411L General Microbiology and General Microbiology Laboratory
- BIO 415 Neurobiology
- BIO 427 Immunology
- BIO 439 Analysis & Interpretation of Biological Data
- BIO 440 & 440L Cell Biology and Cell Biology Laboratory
- BIO 442 & 442L Developmental Biology and Developmental Biology Laboratory
- BIO 445 Evolution & Development
- BIO 460 Introduction to Bioinformatics
- BIO 462 Molecular Biology
- BIO 466 Biology of Infectious Disease
- BIO 470 Cancer Biology
- BIO 475 & 475L Human Anatomy and Human Anatomy Laboratory
- BIO 480 & 480L Principles of Microscopy and Principles of Microscopy Laboratory
- CHM 201 & 201L Quantitative Analysis and Quantitative Analysis Laboratory
- CHM 302 Physical Chemistry
- CHM 427 Medicinal Chemistry
- CHM 451 General Biochemistry I
- CHM 452 General Biochemistry II

**Breadth**

- ASI 150 Introduction to the University Experience
- Electives
- ENG Elective

Select one course from: (Satisfies CAP Practical Ethical Action and Adv Studies in PHL or REL)

- PHL 312 Ethics
- PHL 315 Medical Ethics
- REL 365 Christian Theology and Environmental Ethics
- REL 367 Christian Ethics & Health Care Issues

**Social and Behavioral Sciences (Includes CAP Social Science)**

- Total Hours to total at least 120

3 The elective courses must be directly related to the primary field of interest.
4 Only general elective courses can be taken under Grading Option Two.
5 Select from any 300 or 400 level ENG course.

**Minor in Medical Humanities (MHM)**

Select 5 courses from:

- ANT 336 Topics in Medical Anthropology
- CMM 411 Health Communication
- ENG 366 Health Literacy and Social Justice
- ENG 373 Writing in the Health Professions
- PHL 315 Medical Ethics
- PSY 366 Health Psychology
- REL 367 Christian Ethics & Health Care Issues
- SWK 330 Perspectives on Aging
- SWK 331 Death, Dying and Suicide
- VAF 230 Anatomy Drawing for Non-Majors

1 Additional courses may be approved by the Program Director.

- Bachelor of Science, Predentistry (p. 5)
- Bachelor of Science, Premedicine (p. 4)

**Bachelor of Science, Predentistry**

**First Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Course</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>ASI 150</td>
<td>1</td>
<td>BIO 152</td>
<td>4</td>
</tr>
<tr>
<td>BIO 151 &amp; 151L</td>
<td>4</td>
<td>CHM 124</td>
<td>4</td>
</tr>
<tr>
<td>CHM 123 &amp; 123L</td>
<td>3</td>
<td>MTH 149</td>
<td>3</td>
</tr>
<tr>
<td>MTH 148 (Satisfies CAP Mathematics)</td>
<td>3 REL 103 or PHL 103 (CAP Humanities Commons)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 100 (CAP Humanities Commons)</td>
<td>3</td>
<td>17</td>
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</table>

**Second Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CHM 313 &amp; 313L</td>
<td>4 CHM 314 &amp; 314L</td>
<td>4</td>
<td>PHY 201 &amp; 201L (CAP Natural Science w/lab)</td>
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<tr>
<td>PHL 201 &amp; 201L</td>
<td>3</td>
<td>CMM 100 (CAP Communication)</td>
<td>3</td>
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<tr>
<td>ENG 200 (CAP Writing Seminar)</td>
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<td>SSC 200 (CAP Social Science)</td>
<td>3</td>
</tr>
<tr>
<td>HST 103 (CAP Humanities Commons)</td>
<td>3</td>
<td>17</td>
<td>14</td>
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</tbody>
</table>

1 Well qualified students are advised to take MTH 168-MTH 169.
2 Well qualified students are advised to take PHY 206-PHY 207-PHY 208 lecture sequence with PHY 201L and PHY 202L.
### Bachelor of Science, Premedicine

#### First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ASI 150</td>
<td>1</td>
<td>BIO 152 &amp; 152L</td>
<td>4</td>
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<tr>
<td>BIO 151 &amp; 151L (CAP Natural Science w/lab)</td>
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<td>CHM 124 &amp; 124L</td>
<td>4</td>
</tr>
<tr>
<td>CHM 123</td>
<td>4</td>
<td>MTH 149</td>
<td>3</td>
</tr>
<tr>
<td>MTH 148 (Satisfies CAP Mathematics)</td>
<td>3</td>
<td>REL 103 or PHL 103 (CAP Humanities Commons)</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 (CAP Humanities Commons)</td>
<td>3</td>
<td>REL 103 or PHL 103 (CAP Humanities Commons)</td>
<td>3</td>
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</table>

Total credit hours: 123-124

#### Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 313 &amp; 313L</td>
<td>4</td>
<td>CHM 314 &amp; 314L</td>
<td>4</td>
</tr>
<tr>
<td>PHY 201 &amp; 201L (CAP Natural Science w/lab)</td>
<td>4</td>
<td>PHY 202 &amp; 202L</td>
<td>4</td>
</tr>
<tr>
<td>ENG 200 (CAP Writing Seminar)</td>
<td>3</td>
<td>CMM 100 (CAP Communication)</td>
<td>3</td>
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</tbody>
</table>

Total credit hours: 123-124

#### Courses

**MED 210. Premed Community Health Experience. 0-1 Hours**
This zero or one credit pass/fail mini-course is intended to orient and train the student to provide services as a volunteer at Reach Out of Montgomery County. In addition to learning skills required to perform volunteer functions during the open clinic, students will learn about the complexities of providing healthcare to under-served populations and develop interpersonal skills to be an empathic and informed advocate for patients. Prerequisite(s): Sophomore status.

**MED 220. Hospital Elder Life Program. 0-1 Hours**
Experiential course utilizing the Hospital Elder Life Program (HELP) which is an innovative model program designed to improve the hospital experience of older patients. In this program student volunteers carry out program interventions directly at the bedside. This training program gives volunteers a level of patient contact and responsibility that is unique among hospital programs. The training course includes instruction in the four volunteer intervention programs: Daily Visitor Program, Feeding Assistance Program, Early Mobilization Program, Therapeutic Activities Program. Students must complete all elements of the training program including classroom instruction, Sim lab skills check-offs, and fulfill all required supervised training hours. Prerequisite(s): Sophomore status.
MED 339. Global Brigades: Perspectives on Global Poverty and Health. 1 Hour
Exploration of the health related conditions of rural Nicaragua in preparation for participation in a nine day medical/dental/public health brigade to this area. Upon completion of this course, students will possess the knowledge and skill set necessary to participate in a medical service project with an international service organization focused on providing acute and preventative medical care to underserved populations in rural Nicaragua. Prerequisite(s): SPN 101 (may be taken concurrently) or equivalent language placement.

MED 351. Healthy Children: Addressing Social Needs to Improve Health Outcomes. 1 Hour
Examination of the social needs of pediatric patients and families' social needs that most affect children's health. Will include methods of helping families connect with community resources that can assist in meeting these needs. Prerequisite(s): Sophomore Standing, basic orientation to healthcare or human service industries.

MED 477. Honors Thesis Project. 3 Hours
First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons. Prerequisite(s): Approval of University Honors Program.

MED 478. Honors Thesis Project. 3 Hours
Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons. Prerequisite(s): Approved 477; approval of University Honors Program.

MED 480. Pre-Medicine Capstone. 1 Hour
Seminar focuses on reflection and analysis of a clinical experience such as international medical brigade, Reach Out community medicine experience or Good Neighbor House dental experience (or other experience pre-approved by program director.) Course is offered in Spring semester. Junior or Senior status. MED or DEN Major. Completion of one of the following: international medical brigade and MED 339; Reach Out community medicine experience and MED 210; MED 220 Hospitalized Elder Life Program; Good Neighbor House dental experience and UDI 276 (or other experience pre-approved by program director). Prerequisite(s): MED 210 or MED 220 or MED 339 or UDI 276 or other experience pre-approved by program director.