**Courses of Instruction**

**Dance DNCE**

Instruction offered by members of the Faculty of Fine Arts and the Faculty of Kinesiology. Students must audition before they can register in some of the courses.

Program Coordinator - A. Flynn

### Junior Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dance 201</td>
<td>Introductory Contemporary Dance I</td>
<td>2</td>
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<tr>
<td></td>
<td>Introductory study of the techniques of contemporary dance.</td>
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<td></td>
<td><strong>Note:</strong> Not open to Dance Majors</td>
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<tr>
<td>Dance 203</td>
<td>H(2-2)</td>
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<tr>
<td></td>
<td>Dancing: Body, Mind, Culture</td>
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<td></td>
<td>An introduction to the study of dance in an academic setting.</td>
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<td></td>
<td><strong>Note:</strong> Open to Dance Majors only</td>
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<tr>
<td>Dance 205</td>
<td>Introductory Contemporary Dance II</td>
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<td></td>
<td>Further introductory study of the techniques of contemporary dance.</td>
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<tr>
<td></td>
<td><strong>Prerequisite:</strong> Dance 201 or equivalent or consent of the Program of Dance.</td>
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<tr>
<td>Dance 207</td>
<td>Contemporary Dance I</td>
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<tr>
<td></td>
<td>Elementary study of the techniques of contemporary dance.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 205 or equivalent and audition.</td>
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<tr>
<td>Dance 209</td>
<td>Contemporary Dance II</td>
<td>2</td>
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<td></td>
<td>Further elementary study of the techniques of contemporary dance.</td>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> Dance 207 or equivalent and audition.</td>
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<tr>
<td>Dance 211</td>
<td>Jazz Dance I</td>
<td>2</td>
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<tr>
<td></td>
<td>Introductory study of the techniques of jazz dance.</td>
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<tr>
<td>Dance 221</td>
<td>Ballet I</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Introductory study of the techniques of ballet.</td>
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<tr>
<td>Dance 235</td>
<td>Conditioning for Dancers</td>
<td>2</td>
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<tr>
<td></td>
<td>Study of the basic principles of conditioning for dancers.</td>
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<td></td>
<td><strong>Prerequisite:</strong> Dance 203 or consent of the Program of Dance.</td>
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### Senior Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Dance 303</td>
<td>Principles of Technique</td>
<td>2</td>
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<tr>
<td></td>
<td>Reinforcement of the basic principles of contemporary dance in preparation for more advanced study.</td>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> Dance 209 or equivalent and audition.</td>
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<tr>
<td>Dance 305</td>
<td>Contemporary Dance III</td>
<td>2</td>
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<tr>
<td></td>
<td>Elementary/intermediate study of the techniques of contemporary dance.</td>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> Dance 209 or equivalent and audition.</td>
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<tr>
<td>Dance 307</td>
<td>Contemporary Dance IV</td>
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<tr>
<td></td>
<td>Further elementary/intermediate study of the techniques of contemporary dance.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 305 or equivalent and audition.</td>
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<tr>
<td>Dance 309</td>
<td>Special Topics in Dance Theory</td>
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<td></td>
<td><strong>Prerequisites:</strong> Consent of the Program of Dance.</td>
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<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 311</td>
<td>Jazz Dance II</td>
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<tr>
<td></td>
<td>Elementary study of the techniques of jazz dance.</td>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> Dance 211 or equivalent and audition.</td>
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<tr>
<td>Dance 313</td>
<td>Jazz Dance III</td>
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<tr>
<td></td>
<td>Further elementary study of the techniques of jazz dance.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 311 or equivalent and audition.</td>
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<td>Dance 321</td>
<td>Ballet I</td>
<td>2</td>
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<td></td>
<td>Elementary study of the techniques of ballet.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 221 or equivalent and audition.</td>
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<tr>
<td>Dance 323</td>
<td>Ballet II</td>
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<tr>
<td></td>
<td>Further elementary study of the techniques of ballet.</td>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> Dance 321 or equivalent and audition.</td>
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<tr>
<td>Dance 331</td>
<td>Daniel Improvisation</td>
<td>2</td>
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<tr>
<td></td>
<td>Experiences in individual and group improvisation. Development of skills in designing and participating in improvisational structures.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 209 and Dance Education 247 or equivalent; or consent of the Program of Dance.</td>
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<tr>
<td>Dance 333</td>
<td>Composition I</td>
<td>2</td>
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<tr>
<td></td>
<td>Introduction to basic skills in dance composition with a focus on the solo form.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 331 or equivalent or consent of the Program of Dance.</td>
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<tr>
<td>Dance 341</td>
<td>Early Dance History</td>
<td>3</td>
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<tr>
<td></td>
<td>Historical survey of dance: origins to the nineteenth century.</td>
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<tr>
<td>Dance 345</td>
<td>20th Century Dance History</td>
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<tr>
<td></td>
<td>Historical survey of western theatre dance.</td>
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<tr>
<td>Dance 355</td>
<td>Pilates Conditioning</td>
<td>2</td>
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<tr>
<td></td>
<td>Study of the Pilates method of conditioning utilizing the Pilates Reformer apparatus.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 235 or equivalent and consent of the Program of Dance.</td>
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<tr>
<td>Dance 375</td>
<td>Body/Mind Practices</td>
<td>2</td>
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<tr>
<td></td>
<td>The theory and application of selected somatic practices.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Kinesiology 261 or consent of the Program of Dance.</td>
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<tr>
<td>Dance 395</td>
<td>Dance Performance Practicum I</td>
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<td></td>
<td>Practical experience in dance performance choreography, or artistic direction.</td>
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<td><strong>NOT INCLUDED IN GPA</strong></td>
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<tr>
<td>Dance 401</td>
<td>Open Contemporary Dance I</td>
<td>2</td>
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<tr>
<td></td>
<td>Study in the principles and techniques of contemporary dance, open to intermediate and advanced levels.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 307 or equivalent and audition.</td>
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<tr>
<td>Dance 403</td>
<td>Open Contemporary Dance II</td>
<td>2</td>
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<td></td>
<td>Further study in the principles and techniques of contemporary dance, open to intermediate and advanced levels.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 401 or equivalent and audition.</td>
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<tr>
<td>Dance 405</td>
<td>Contemporary Dance V</td>
<td>2</td>
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<tr>
<td></td>
<td>Intermediate study of the techniques of contemporary dance.</td>
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<td></td>
<td><strong>Prerequisites:</strong> Dance 307 or equivalent and audition.</td>
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### Dance Education Courses of Instruction

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Dance 407</td>
<td>H(2S-4)</td>
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<tr>
<td>Contemporary Dance VI</td>
<td>Further intermediate study of the techniques of contemporary dance.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 405 or equivalent and audition.</td>
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<tr>
<td>Dance 411</td>
<td>H(2S-4)</td>
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<tr>
<td>Jazz Dance IV</td>
<td>Intermediate study of the techniques of jazz dance.</td>
<td></td>
</tr>
<tr>
<td><strong>Prerequisites:</strong> Dance 313 or equivalent and audition.</td>
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</tr>
<tr>
<td>Dance 413</td>
<td>H(2S-4)</td>
<td></td>
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<tr>
<td>Jazz Dance V</td>
<td>Further intermediate study of the techniques of jazz dance.</td>
<td></td>
</tr>
<tr>
<td><strong>Prerequisites:</strong> Dance 411 or equivalent and audition.</td>
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<tr>
<td>Dance 421</td>
<td>H(2S-4)</td>
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<tr>
<td>Ballet IV</td>
<td>Intermediate study of the techniques of ballet.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 323 or equivalent and audition.</td>
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<tr>
<td>Dance 423</td>
<td>H(2S-4)</td>
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<tr>
<td>Ballet V</td>
<td>Further intermediate study of the techniques of ballet.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 421 or equivalent and audition.</td>
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<tr>
<td>Dance 431</td>
<td>H(2S-2)</td>
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<tr>
<td>Composition II</td>
<td>Continued exploration in basic dance composition skills progressing toward group forms.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 333 or equivalent and consent of the Program of Dance.</td>
<td>Note: Not open to students with credit in Dance 430.</td>
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<tr>
<td>Dance 433</td>
<td>H(2S-2)</td>
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<tr>
<td>Composition III</td>
<td>Continued study of dance composition introducing such elements as sound, voice and text, physical theatre, the use of props and alternative spaces.</td>
<td></td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 431 or equivalent and consent of the Program of Dance.</td>
<td>Note: Not open to students with credit in Dance 430.</td>
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<tr>
<td>Dance 455</td>
<td>H(2S-4)</td>
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<tr>
<td>Contemporary Dance VI(a)</td>
<td>Continuing intermediate study of the techniques of contemporary dance.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 407 or equivalent and audition.</td>
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<tr>
<td>Dance 457</td>
<td>H(2S-4)</td>
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<tr>
<td>Contemporary Dance VI(b)</td>
<td>Further continuing intermediate study of the techniques of contemporary dance.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 455 or equivalent and consent of the Program of Dance.</td>
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<td><strong>Course Information:</strong> Courses of Instruction</td>
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<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 463</td>
<td>H(2S-2)</td>
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<tr>
<td>Applied Movement Principles</td>
<td>The analysis of dance movement and training, incorporating appropriate studies in anatomy, dance injuries and their prevention, care and rehabilitation; posture correction and body conditioning for dance.</td>
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<tr>
<td><strong>Prerequisites:</strong> Kinesiology 261 and two of Dance 205, 207, 211, 221 or equivalent.</td>
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<tr>
<td>Dance 475</td>
<td>H(2S-2)</td>
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<tr>
<td>Special Topics in Body/Mind Practices</td>
<td>A focus on one or more of the well-known Body/ Mind practices such as Feldenkrais, Alexander, Yoga, Body/Mind Centering, Bartenieff Fundamentals, Laban Movement Analysis.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 375 or consent of the Program of Dance.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 491</td>
<td>H(2S-2)</td>
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<tr>
<td>Design for Dance</td>
<td>Study of the design and production components of dance performance.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 333 or equivalent and consent of the Program of Dance.</td>
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<tr>
<td>Dance 495</td>
<td>H(1S-5)</td>
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<tr>
<td>Dance Performance Practicum III</td>
<td>Advanced practical experience in dance performance, choreography, or artistic direction.</td>
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<tr>
<td><strong>Prerequisites:</strong> Consent of the Program of Dance.</td>
<td><strong>Prerequisite or Corequisite:</strong> Dance 397</td>
<td>NOT INCLUDED IN GPA</td>
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<tr>
<td>Dance 499</td>
<td>H(2S-4)</td>
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<tr>
<td>Performance Techniques</td>
<td>A study of practical techniques in deepening performance integrity.</td>
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</tr>
<tr>
<td><strong>Prerequisites:</strong> Consent of the Program of Dance.</td>
<td><strong>Prerequisite or Corequisite:</strong> Dance 397</td>
<td>NOT INCLUDED IN GPA</td>
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<tr>
<td>Dance 505</td>
<td>H(2S-4)</td>
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<tr>
<td>Contemporary Dance VII</td>
<td>Intermediate/advanced study of the techniques of contemporary dance.</td>
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<td><strong>Prerequisites:</strong> Dance 407 or equivalent and audition.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 507</td>
<td>H(2S-4)</td>
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<tr>
<td>Contemporary Dance VIII</td>
<td>Further intermediate/advanced study of the techniques of contemporary dance.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 505 or equivalent and audition.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 571</td>
<td>H(1S-6)</td>
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<tr>
<td>Directed Studies I</td>
<td><strong>Prerequisite:</strong> Consent of the Program of Dance.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 572</td>
<td>F(1S-6)</td>
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<tr>
<td>Directed Studies II</td>
<td><strong>Prerequisite:</strong> Consent of the Program of Dance.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 574</td>
<td>F(0-7)</td>
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<tr>
<td>Travel Study</td>
<td>An international perspective on dance training, performance and culture.</td>
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<tr>
<td><strong>Prerequisite:</strong> Consent of the Program of Dance.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 581</td>
<td>H(1S-6)</td>
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<tr>
<td>Special Topics in Dance</td>
<td><strong>Prerequisite:</strong> Consent of the Program of Dance.</td>
<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
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<tr>
<td>Dance 591</td>
<td>H(1S-5)</td>
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<tr>
<td>Dance Production Practicum</td>
<td>Practical experiences in lighting, sound, costuming, promotion and production of dance performances.</td>
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<tr>
<td><strong>Prerequisites:</strong> Dance 491 and consent of the Program of Dance.</td>
<td><strong>NOT INCLUDED IN GPA</strong></td>
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<tr>
<td><strong>Dance Education Courses of Instruction:</strong></td>
<td>Instruction offered by members of the Faculties of Kinesiology and Fine Arts.</td>
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<tr>
<td>Students should also see course listings under the headings Dance Education Activity/Theory, Kinesiology, Outdoor Pursuits, Outdoor Pursuits Activity/Theory, Physical Education, and Physical Education Activity/Theory.</td>
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### Junior Courses

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Dance Education 225</td>
<td>H(1-3)</td>
<td>Aesthetic Movement Principles</td>
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<tr>
<td><strong>Prerequisite:</strong> Pedagogy Majors in Kinesiology and BA Dance Majors only.</td>
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<tr>
<td>Dance Education 243</td>
<td>H(1-3)</td>
<td>Introduction to Dance</td>
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<tr>
<td><strong>Course Information:</strong> Courses of Instruction</td>
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<td><strong>MAY BE REPEATED FOR CREDIT</strong></td>
</tr>
<tr>
<td>Dance Education 247</td>
<td>H (2-2)</td>
<td>Laban Analysis</td>
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<tr>
<td>Dance Education 251</td>
<td>H (2-2)</td>
<td>Introduction to Music for Dance</td>
</tr>
</tbody>
</table>
Courses of Instruction

Senior Courses

Dance Education 303  H(2-2)

Special Topics

MAY BE REPEATED FOR CREDIT

Dance Education 325  H(1-3)
(formerly Dance Education 321)

Dance in Schools

Content, planning, and teaching methodology in school dance.
Prerequisite: Dance Education 221, 225, or 247.
Note: Open to Pedagogy Majors in Kinesiology and BA Dance Majors only.

Dance Education 427  H(1-3)

Social and Recreational Dance Forms

Practical experience in a range of social and recreational dance forms.

Dance Education 449  H(2-2)

Dance Teaching Techniques

Principles and practice of dance instruction.
Prerequisites: Kinesiology 261, Dance 307, 313 or 323, and 483, or consent of the Program of Dance.

Dance Education 481  H(3-0)

Dance and Culture

The study of dance as a cultural practice.
Prerequisite: One of Dance Education 243, Dance 341 or 345.

Dance Education 493  H(1-3)
(formerly Dance Education 491)

Dance Teaching Practicum

Practical experience teaching dance in school and recreational settings.
Prerequisite: Consent of the Faculty. NOT INCLUDED IN GPA

Dance Education 503  H(3-0)

Special Topics

Prerequisite: Consent of the Faculty.
MAY BE REPEATED FOR CREDIT

Graduate Course

Dance Education 603  H(3-0)

Special Topics

Selected topics in Dance Education and related subjects.
Prerequisite: Consent of the Faculty.
MAY BE REPEATED FOR CREDIT

Dance Education Activity/Theory  DEAT

Instruction offered by members of the Faculty of Kinesiology.
Students should also see course listings under the headings Dance Education, Kinesiology, Outdoor Pursuits, Outdoor Pursuits Activity/Theory, Physical Education, and Physical Education Activity/Theory.

Junior Courses

Dance Education Activity/Theory 279  E(0-2)

Ballroom Dance I

Dance Education Activity/Theory 281  E(0-2)

Folk Dance I

Dance Education Activity/Theory 287  E(0-2)

Tap Dance I

Dance Education Activity/Theory 289  E(0-2)

Renaissance Dance

Senior Course

Dance Education Activity/Theory 379  E(0-2)

Ballroom Dance II

Prerequisite: Dance Education Activity/Theory 279 or consent of the Faculty.

Development Studies  DEST

A seminar in cross-cultural communication at the personal, organizational, societal, and international levels. Discusses the concept of “Globalization” and its implications for communication among different cultures; analyzes various theoretical perspectives underlying intercultural communication; explores issues of power, identity, and influence; examines intercultural encounters in the context of specific diversified settings; and helps students develop intercultural communication competence.
Prerequisite: Third year standing.

Development Studies 501  H(3-0)

Research in Selected Topics

Supervised individual study of a special topic.
Prerequisites: Consent of the Development Studies Director and the Associate Dean (Academic).
Note: Students should contact the Office of the Associate Dean (Academic) prior to the first day of classes to arrange an independent study course.
MAY BE REPEATED FOR CREDIT

Development Studies 591  H(3S-0)

Critical Perspectives on Development Practice and Research

An interdisciplinary consideration of selected issues and methodologies in development, which will provide students with the critical perspective and skills needed to conceptualize, design, implement and effectively manage community development projects and programs.
Prerequisites: Development Studies 375 and 393

Drama  DRAM

Instruction offered by members of the Department of Drama in the Faculty of Fine Arts.
Department Head - D. McCullough

Drama 001  (0-4)

Theatrical Stage Production I

NOT INCLUDED IN GPA

Drama 002  (0-4)

Theatrical Stage Production II

NOT INCLUDED IN GPA

Drama 003  (0-4)

Theatrical Stage Production III

NOT INCLUDED IN GPA

Drama 004  (0-4)

Theatrical Stage Production IV

NOT INCLUDED IN GPA
Junior Courses

Drama 200 F(3S-2)
Introduction to Acting

Practical experience in acting; improvisation and introductory work from texts; the development of communication skills and personal acting creativity.

Drama 222 F(1-3)
Introduction to Theatre Production

An introduction to design, technical and organizational principles of theatre production.

Note: Participation on the production crews of Department productions is required.

Drama 240 F(3-1T)
Introduction to Drama

Interpretation and study of dramatic genres related to the Department's season of plays; introduction to play analysis.

Senior Courses

The following listing is provided to assist students in their selection of related groups of Drama courses.

Acting and Directing:

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Design and Technical:

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Dramatic Literature, Criticism, History, Theory:

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Theatre for Young Audiences and Developmental/Performance Drama:

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Drama 300 F(2S-4)
Advanced Acting I

Further development of fundamental acting techniques; participation in the Department's season of plays may be required.

Prerequisites: Drama 200 and consent of the Department.

Drama 313 H(2S-2)
Introduction to Design for Theatre I

Basic set, props, lighting and costume design theory, process and technique for a variety of theatre forms and performance styles.

Prerequisite or Corequisite: Drama 319 or consent of the Department.

Drama 315 H(2S-2)
Introduction to Design for Theatre II

Continuation of Drama 313.

Prerequisite: Drama 313 or consent of the Department.

Drama 317 H(2S-2)
Introduction to Stage Sound

Basic principles of sound for the theatre: recording, reinforcement and reproduction techniques and methods used in creating a production design.

Prerequisite: Drama 222 or consent of the Department.

Note: This course meets for two hours per week during the Fall and Winter Sessions.

Drama 319 H(2S-2)
Graphics and Model Building for Theatre

An introduction to graphic and model building techniques for the theatre designer.

Prerequisite: Drama 222 or consent of the Department.

Drama 321 H(2S-2)
Stage Management

Principles of stage management; a stage management project related to one of the presentations in the Department's season of plays.

Prerequisite: Drama 222 or consent of the Department.

Note: This course meets for two hours per week during both the Fall and Winter Sessions.

Drama 325 H(4-0)
History of Civil Dress and Decor I

An overview of the history of civil dress and the related arts of architecture and decor from prehistory to the Renaissance.

Drama 329 H(4-0)
History of Civil Dress and Decor II

An overview of the history of civil dress and the related arts of architecture and decor from the Renaissance to contemporary times.

Prerequisite: Drama 325 or consent of the Department.

Drama 340 F(4S-0)
Seminar in Drama I

Critical examination of each play performed in the Department's season of plays centred upon their genres and historical settings; staging requirements for contemporary productions and other works by the same authors and their contemporaries may also be studied.

Prerequisite: Drama 240 or consent of the Department.

Drama 342 F(3-0)
History of the Theatre: Origins to the Late Eighteenth Century

Theatre as an art and social phenomenon in selected cultures, emphasizing the development of Western traditions.

Drama 344 F(3-0)
History of the Theatre: The Late Eighteenth Century to the Present

Popular and elite traditions of theatre in Western Europe and North America.

Drama 356 F(3S-0)
Canadian Theatre and Drama

History, literature, and cultural milieu of Canadian theatre from its colonial origins to the present day.

Drama 360 F(2S-2)
Developmental Drama I

Explorations in personal creativity; practical experience in creative drama activity; the principles, theories, and application of creative drama.

Note: Not open to students with credit in Drama 365.

Drama 362 F(2S-2)
Theatre for Young Audiences I

History and objectives of theatre for the young audience; practical work in the principles and techniques of acting, directing and producing plays.

Drama 364 F(2S-2)
Performance Media

Methods of adapting alternative spaces for performance, with emphasis on non-traditional modes of production, exploration and investigation of existing hardware and software to facilitate image and sound manipulation in the creation of performance environments.

Prerequisite: Consent of the Department.

Drama 371 H(2S-2)
Introduction to Playwriting

Directed exercises in writing for the theatre; workshop sessions for developing and reworking material.

Prerequisites: Drama 200, 222, and 240 or consent of the Department.

Drama 375 H(1.5-1.5)
Fundamentals of Puppetry

History and development of puppetry; basic design, construction and manipulation of hand, rod and shadow puppets.

Drama 391 H(0-6)
Performance Practicum I

Practical experience in theatrical production.

Prerequisites: Drama 200, 222, and 240 or consent of the Department.

Note: Not open to students with credit in Drama 390.

Drama 393 H(0-6)
Performance Practicum II

Further practical experience in theatrical production.
Courses of Instruction

Prerequisite: Drama 391.

Note: Not open to students with credit in Drama 390.

Drama 400 F(3S-6)

Advanced Acting II
Further study in the techniques of acting; performance in the Department's season of plays may be required.

Prerequisites: Drama 300 and consent of the Department.

Drama 409 H(1-4)

Scenic Painting
Skills and techniques of advanced scenic art; development of working aesthetic principles in producing visual art for the stage; emphasis on process in the paint shops, and on the techniques and tools of realization within constraints of deadlines and available resources.

Prerequisites: Drama 313, 319 and 319 or consent of the Department.

Drama 410 F(2-2)

Fundamentals of Directing
Theories and practical techniques of directing plays; students may be required to observe or assist faculty directors. Studies will be coordinated with the Department's season of plays whenever possible.

Prerequisites: Drama 200, 222, and 340 or consent of the Department.

Drama 411 H(1-4)

Advanced Scenic Painting
Further development of skills and techniques of advanced scenic art; emphasis on the acquisition of advanced professional skills and disciplines.

Prerequisite: Drama 409 or consent of the Department.

Drama 415 H(2-2)

Advanced Lighting Design and Technique I
Advanced studies in lighting design for the theatre. Studies in design and presentation for lighting various forms of contemporary theatre events and spaces.

Prerequisite: Drama 315 or consent of the Department.

Note: Not open to students with credit in Drama 426.

Drama 417 H(2-2)

Advanced Lighting Design and Technique II
Continuation of Drama 415. Advanced studies in lighting design for the theatre.

Prerequisite: Drama 415 or consent of the Department.

Note: Not open to students with credit in Drama 426.

Drama 419 H(2-2)

Advanced Scene Design and Technique I
Set design and scenography for a variety of contemporary theatre forms and genres.

Prerequisite: Drama 315 or consent of the Department.

Note: Not open to students with credit in Drama 422.

Drama 423 H(2-2)

Advanced Scene Design and Technique II
Continuation of Drama 419 with a heightened emphasis on the interpretation of text to design.

Prerequisite: Drama 419 or consent of the Department.

Drama 425 H(2S-2)

Advanced Costume Design and Technique I
Costume design and technique in relation to major styles of presentation.

Prerequisites: Drama 315, 319 and consent of the Department.

Drama 429 H(2S-2)

Advanced Costume Design and Technique II
Continuation of Drama 425, costume design and technique in relation to major styles of presentation.

Prerequisite: Drama 425.

Drama 440 F(4S-0)

Seminar in Drama II
Critical study of plays in the Department's season of plays suited to students in their third and fourth years; critical analysis and historical interpretation is integrated with a careful consideration of requirements for staging; plays generically or historically related may also be studied.

Prerequisite: Drama 340 or consent of the Department.

Drama 460 F(2S-2)

Developmental Drama II
Theory and techniques of developing limited-resource productions and collective creations; other applications of dramatic techniques are investigated.

Prerequisite: Drama 360 or consent of the Department.

Drama 462 F(2S-2)

Theatre for Young Audiences II
Problems of performance for young people through a study of comparative styles, research and practical projects; the rehearsal and production of scripted plays.

Prerequisite: Drama 362 or consent of the Department.

Drama 471 H(2S-2)

Playwriting
Intermediate studies in writing for the theatre leading to the development of a one-act or full-length piece; workshop sessions for developing and rehearsing material.

Prerequisites: Drama 371 and consent of the Department.

Drama 491 H(0-6)

Performance Practicum III
Further practical experience in theatrical production.

Prerequisite: Drama 393.

Note: Not open to students with credit in Drama 490.

Drama 493 H(0-6)

Performance Practicum IV
Further practical experience in theatrical production.

Prerequisite: Drama 491.

Note: Not open to students with credit in Drama 490.

Drama 500 F(3S-6)

Advanced Acting III
Interpretation of roles and special problems in performance; performance in the Department's season of plays may be required.

Prerequisites: Drama 400 and consent of the Department.

Drama 510 F(2S-3)

Advanced Directing
Problems in play directing; the directing of scenes and a short play; the preparation of a promptbook; history of directing; participation as an assistant to the director in the Department's season of plays may be required.

Prerequisites: Drama 410 and consent of the Department.

Drama 517 H(2S-2)

Advanced Design for Theatre I
Advanced set, props, lighting, and costume design theory, process and technique for a variety of theatre forms and performance styles.

Prerequisite: Consent of the Department.

Drama 519 H(2S-2)

Advanced Design for Theatre II
Continuation of Drama 517.

Prerequisites: Drama 517 and consent of the Department.

Drama 531 H(2S-2)

Scene Painting I
Theory and technique of scene painting for a variety of theatre genres.

Prerequisite: Consent of the Department.

Drama 533 H(2S-2)

Scene Painting II
Continuation of theory and technique of scene painting for a variety of theatre genres.

Prerequisites: Drama 531 and consent of the Department.

Drama 540 H(4S-0)

Seminar in Drama III
Critical study at an advanced level of the dramatic metaphor as presented in the Department's season of plays; intensive focus on the historical period and theatrical genre of one or two of the season's plays especially.

Prerequisite: Drama 440 or consent of the Department.

Drama 560 F(2S-2)

Developmental Drama III
Comparative studies of developmental drama; intermediate project work.

Prerequisite: Drama 460 or consent of the Department.
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<td>Performance Practicum VI</td>
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<td>Seminar in Costume Design</td>
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<td>Drama 973</td>
<td>Seminar in Lighting Design</td>
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<tr>
<td>Drama 977</td>
<td>Seminar in Technical Direction</td>
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<tr>
<td>Drama 983</td>
<td>Seminar in Scene Design</td>
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<tr>
<td>Drama 987</td>
<td>Seminar in Costume Design</td>
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<tr>
<td>Drama 993</td>
<td>Seminar in Lighting Design</td>
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<tr>
<td>Drama 995</td>
<td>Seminar in Technical Direction</td>
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Drama/East Asian Studies

Drama Education

Research into the nature and function of drama education across a variety of age levels and learning environments. Practical experience in structuring learning activities, developing classroom controls and facilitating creative process and performance may be included.

Prerequisite: Drama 460 or consent of the Department.

MAY BE REPEATED FOR CREDIT

Directed Studies I

Prerequisite: Consent of the Department.

MAY BE REPEATED FOR CREDIT

Directed Studies II

Prerequisite: Consent of the Department.

MAY BE REPEATED FOR CREDIT

Professional Theatre Internship

Internship experience in acting; directing; design; dramaturgy; theatre, stage or production management with a local professional theatre organization.

Prerequisites: Fourth-year standing and consent of the Department.

MAY BE REPEATED FOR CREDIT

Performance Practicum V

Further practical experience in theatrical production.

Prerequisite: Drama 493.

Performance Practicum VI

Further practical experience in theatrical production.

Prerequisite: Drama 591.

Graduate Courses

Methods in Theatre Research

Methods in research in the four areas of specialization in the MFA Theatre program.

Note: Required of all students enrolled in the MFA Theatre program.

Senior Courses

Drama 662 Seminar and Practicum in Theatre for Young Audiences

Dutch Civilization

Principal trends in the development of Dutch civilization and its place in the European setting.

Note: This course is given in English and no knowledge of Dutch is required.

East Asia

A collaborative offering of the Faculties of Communication and Culture, Humanities and Social Sciences.

Senior Courses

East Asia 300 Introduction to East Asia

An examination of East Asian civilizations from ancient times to the modern period, including the socio-cultural forces that were shaped by and that contributed to the religious, historical, economic, literary, artistic, and political developments of this region. Attention will be given to such topics as how the East Asian civilizations came into being and the rise and development of various institutions that contributed to East Asia’s distinctive cultural identities.

East Asia 500 Contemporary Issues in East Asia

Contemporary social, philosophical, economic, political, and international issues within East Asia and analysis of the basis for contemporary interactions across the Pacific.

Prerequisites: East Asia 300, one full-course equivalent of the East Asia Major “Applied Methods” courses and at least one full-course equivalent in Japanese or Chinese language.

East Asian Studies

Instruction offered under the direction of the Faculty of Communication and Culture. For information contact the Academic Programs Office, 220-6343.

Additional interdisciplinary courses are offered under the course headings African Studies, Canadian Studies, Central and East European Studies, Communications Studies, Development Studies, General Studies, Latin American Studies, Law and Society, Leisure, Tourism and Society, Museum and Heritage Studies, Northern Planning and Development Studies, Science, Technology and Society, South Asian Studies, and Women’s Studies.

Senior Courses

East Asian Studies 317 Understanding East Asia

Society, resources and environment; roots of ancient civilization; racial, ethnic and linguistic diversities; philosophic and religious traditions; arts and aesthetics; historical bases of tradition and modernity; role of education in social development; ideological differences and economic development. Primary focus on China, Japan, Korea and Taiwan.

Note: Not open to students with credit in or concurrently registered in East Asia 300.

East Asian Studies 319 East Asian Values in a Canadian Setting

Examines the presence of East Asian values within Canada, their potential for greater acceptance in and contribution to Canadian life, and changes that would facilitate the acceptance of East Asians into the Canadian mainstream. East Asian values will be examined generically, as well as specifically to the cultures of China, Japan, Korea and Vietnam.

Note: Not open to students with credit in General Studies 301.04.

Note: Previous course work in East Asian culture would be advantageous to the student.

East Asian Studies 321 East Asian Values in a Canadian Setting

Examines the presence of East Asian values within Canada, their potential for greater acceptance in and contribution to Canadian life, and changes that would facilitate the acceptance of East Asians into the Canadian mainstream. East Asian values will be examined generically, as well as specifically to the cultures of China, Japan, Korea and Vietnam.

Note: Not open to students with credit in General Studies 301.04.

Note: Previous course work in East Asian culture would be advantageous to the student.

Introduction to the Calgary Chinese Community

Provides instruction on the direct experience of important aspects of the Calgary Chinese community, including its history, commercial sector, entertainment facilities, and its cultural, social, and religious organizations.

Note: Not open to students with credit in General Studies 301.06.

Note: Course requires off-campus attendance with a considerable amount of walking involved.

Note: Until August 15, preference in enrollment is given to Majors in East Asia.
Courses of Instruction

East Asian Studies 403  H(3-0)
East Asian Perspectives on the Environment
Focuses on traditional East Asian attitudes to the environment. Investigates the philosophical foundations, concrete measures arising from, and positive consequences of these attitudes. Outlines environmental problems in western nations, including more modern developments in East Asia, as a demonstration of the difficulty and need of contributing to restoration and preservation of the environment. Concludes with an examination of how traditional East Asian attitudes could potentially benefit the environment today.
Note: Previous course work in East Asian culture would be advantageous to the student.

Ecology 413  (140 hours)
Field Course in Ecology
An examination of ecological principles and techniques through field exercises, including studies of terrestrial and aquatic populations, communities and ecosystems. The course is held at the Kananaskis Centre for Environmental Research in the two weeks immediately prior to the commence- ment of the Fall Session.
Prerequisites: Biology 313 and 315.
Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

†Ecology 417  H (3-3)
Aquatic Communities and Ecosystems
Community composition and dynamics at the various trophic levels of aquatic ecosystems. Temporal and spatial changes in community composition, physical and chemical conditions, and their effects on the ecosystem. There will be a full week-end field trip.
Prerequisites: Biology 313 and 315 or consent of the Department.
Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

Ecology 419  H (3-3)
Terrestrial Communities and Ecosystems
Prerequisites: Biology 313 and 315 or consent of the Department.
Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

Ecology 425  H(3-3)
Quantitative Biology II
Quantitative analysis as applicable to ecological research. Methodologies and models will be presented and analyzed. Particular emphasis will be placed on experimental design, regression analysis, and the study of spatial dispersion.

Prerequisites: Biology 313 and 315.
Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

Ecology 429  H(3-3)
Ecology of Individuals
Ecological and evolutionary perspectives on physiology and behaviour. This course focuses on the influences on resource acquisition, maintenance, growth, and reproduction and their implications for survival and fertility.
Prerequisites: Biology 313 and 315.
Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

Ecology 439  H(3-3)
Ecology of Populations
A conceptual and practical treatment of population ecology including: population growth, demography, life histories, population dynamics, competition, predation and mutualism.
Prerequisites: Ecology 425 and 429.
Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

Ecology 491  H(3-3)
Ecological Entomology
Insect diversity. Terrestrial and aquatic adaptations. Chemical ecology and insect relationships with plants. Behavioural ecology with emphasis on social insects. Insect populations and their natural and artificial control.
Prerequisites: Biology 233 and 313.
Note: Offered in odd-even dated academic years.

Ecology 501  H(0-3)
Ecological and Evolutionary Applications
A class project course in which students apply their understanding of ecological and evolutionary concepts and their analytical skills to investigate selected problems in detail. Project topics vary from year to year and will include fundamental and applied problems. Formal written and oral reports will be presented as a necessary component of the course.
Prerequisite: Ecology 417.
Prerequisites or Corequisites: Biology 401, Ecology 419 and 439.
Note: Ecology 501 should be taken in the final year of the program.

Ecology 507  H(3-3)
Special Problems in Ecology
Lectures, seminars, term papers and training in theoretical and/or laboratory methods. After consultation with a Departmental faculty member who will supervise the chosen problem, a permission form obtained from the Department Office must be signed by the course supervisor before a student can register.
Prerequisites: Third or higher-year standing and consent of the Department.
MAY BE REPEATED FOR CREDIT

Ecology 527  H(3-2T)
Ecology of Fishes
The ecology of fishes with an emphasis on freshwater systems. Fish will be used as models for examining ecological principles and theory at various levels of organization including physiologi-
Courses of Instruction

Economics ECON

Instruction offered by members of the Department of Economics in the Faculty of Social Sciences.
Department Head - E.A. Willman

Junior Courses

Economics 201 H(3-1T)
Principles of Microeconomics
Principles of consumption, production, exchange: market and firm equilibrium under different competitive conditions. These principles are applied to various contemporary problems in the Canadian economy, such as the changing structure of agriculture, foreign ownership and control, and pollution.

Economics 203 H(3-1T)
Principles of Macroeconomics
National income determination, the monetary and banking system, and elementary fiscal and monetary policies. Contemporary problems of unemployment, inflation, economic growth, business cycles and the international economy.
Prerequisite or Corequisite: Economics 201 or consent of the Department.

Economics 209 H(3-1T)
(Engineering 209)
Engineering Economics
The basic tools and methodology of engineering economic studies. Topics include investment decisions, theory of replacement, economies of scale, externalities, social decision making and government regulation. Examples are drawn from engineering projects.
Prerequisite: Registration in the Faculty of Engineering with second year standing or higher. If not registered in the Faculty of Engineering, consent of the Department of Economics.

Senior Courses

Economics 301 H(3-0)
Intermediate Economic Theory - Microeconomics I
Demand, production and costs in a market economy. Pricing in perfectly and imperfectly competitive markets.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 303 H(3-0)
Intermediate Economic Theory - Macroeconomics I
Introduction to the analysis of macroeconomic issues including the causes of recessions and unemployment, the determination of exchange rates, and the effects of government policies.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 305 H(3-1T)
Computational Optimization and Economic Applications I
The use of linear optimization methods to structure and solve numerical resource allocation problems. Topics include model formulation, solution techniques, microcomputing software and duality. Numerous practical applications to economic, management and energy problems, including cost-benefit analysis.
Prerequisite: Economics 201 or consent of the Department.

Economics 307 H(3-1T)
Computational Optimization and Economic Applications II
Extensions of methods and models of linear optimization, including nonlinear optimization, with applications to economic, management, and energy problems.
Prerequisite: Economics 305 or consent of the Department.

Economics 309 H(3-0)
Microeconomics for Economics and Society
Microeconomic concepts, including consumer behaviour, firm behaviour, competitive markets, factor markets, general equilibrium, market failure, welfare economics, and social choice with an emphasis on public policy applications.
Prerequisite: Economics 201 or consent of the Department.
Note: Credit for both Economics 309 and either 357 or 529 will not be allowed.
Note: Designed for students majoring in Economics and Society and for students not majoring in Economics.

Economics 311 H(3-1)
Computer Applications in Economics
Use of spreadsheets for economics applications, including project evaluation with financial-economic functions, oil and gas prospect evaluation, investment portfolio management with database functions, database retrieval, and various topics in micro- and macro-economics.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 313 H(3-0)
Macroeconomics for Economics and Society
Analyzes the behaviour of macroeconomic variables such as Gross Domestic Product, interest rates, inflation, unemployment, balance of payments and the foreign exchange rate. Emphasis will be on monetary and fiscal policy applications.
Prerequisites: Economics 201 and 203 or consent of the Department.
Note: Credit for both Economics 313 and either 359 or 531 will not be allowed.
Note: Designed for students majoring in Economics and Society and for students not majoring in Economics.

Economics 315 H(3-0)
Introduction to Econometrics I
Introduction to techniques used in quantifying economic relationships. Topics include estimation and testing of hypotheses, forecasting and construction of prediction intervals, use of appropriate functional forms, detection and correction of measurement problems, and use of programs emphasizing single equation regression analysis.
Prerequisites: Economics 201/203 and Statistics 213, or consent of the Department.
Note: Credit for both Economics 315 and 523 will not be allowed.

Economics 321 H(3-0)
The Global Trading System
Introduction to the theory of international trade; provides a basis for examining Canadian trade policy, and regional and world trade institutions such as the WTO and NAFTA. Topics include: tariffs, non-tariff barriers and enhancements, countervail and anti-dumping action, multinational enterprises and international joint ventures.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 323 H(3-0)
Natural Gas Markets
Prerequisites: Economics 201/203 or consent of the Department.

Economics 325 H(3-0)
Petroleum in the North American Economy
The operation of the crude petroleum industry in North America. Economics of exploration, development, production, marketing and transportation of natural gas. Impact of government regulations and deregulation.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 327 H(3-0)
Petroleum in the World Economy
The structure of the world petroleum industry, with particular reference to the exploration decision, market structure, and particular policy questions such as conservation, special taxation provisions, and regional income effects.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 329 H(3-0)
Development Economics
An introduction to developing economics: the meaning, significance and purpose of economic development, major theories of economic development, economic problems of developing countries.
Prerequisites: Economics 201/203 or consent of the Department.

Economics 331 H(3-0)
Canadian Economic Development
The growth and development of the Canadian economy in relation to the endowment of natural resources, changing market conditions and technology, and Canadian public policy.
Prerequisites: Economics 201/203 or consent of the Department.
### Courses of Instruction

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>Economics 341</td>
<td>Money and Banking</td>
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<td>Economics 345</td>
<td>Economic Analysis of Law</td>
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<td>H(3-0)</td>
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<tr>
<td>Economics 349</td>
<td>The Economics of Social Problems</td>
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<td>H(3-0)</td>
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<tr>
<td>Economics 355</td>
<td>Canadian Public Finance</td>
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<td>H(3-0)</td>
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<tr>
<td>Economics 357</td>
<td>Intermediate Economic Theory - Microeconomics II</td>
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<td>Economics 359</td>
<td>Intermediate Economic Theory - Macroeconomics II</td>
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<td>Economics 365</td>
<td>Regional Economics</td>
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<td>Economics 367</td>
<td>Agricultural Economics</td>
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<tr>
<td>Economics 371</td>
<td>Economic Analysis of Transportation</td>
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<tr>
<td>Economics 373</td>
<td>Game Theory and Strategic Thinking for the Social Sciences</td>
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<td>Economics 377</td>
<td>Economics of the Environment</td>
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<tr>
<td>Economics 379</td>
<td>The Economics of Health</td>
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<tr>
<td>Economics 387</td>
<td>Introduction to Mathematical Economics I</td>
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<td>Economics 389</td>
<td>Introduction to Mathematical Economics II</td>
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<tr>
<td>Economics 397</td>
<td>Intermediate Economic Theory: Business Applications</td>
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<tr>
<td>Economics 399</td>
<td>Selected Topics in Economics I</td>
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<tr>
<td>Economics 401</td>
<td>Public Sector Economics: Expenditures</td>
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<tr>
<td>Economics 403</td>
<td>Public Sector Economics: Taxation</td>
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<tr>
<td>Economics 405</td>
<td>Political Economy of Public Policy</td>
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### Prerequisites and Notes:

- **Economics 201/203 or consent of the Department.**
- **Note:** Credit for both Economics 387 and 304 will not be allowed.
**Economics 415**  
**Seminar in Contemporary Policy Issues I**  
An examination of selected problems and policies, with special emphasis on microeconomic issues.  
**Prerequisites:** Economics 303 and 315; or consent of the Department.  
**Prerequisite or Corequisite:** Economics 357.  

**Economics 417**  
**Seminar in Contemporary Policy Issues II**  
An examination of selected problems and policies, with special emphasis on macroeconomic issues.  
**Prerequisites:** Economics 301 and 315; or consent of the Department.  
**Prerequisite or Corequisite:** Economics 359.  

**Economics 419**  
(formerly Economics 317)  
**Introduction to Econometrics II**  
Econometric techniques emphasizing estimation of sets of interdependent economic relationships. Topics include construction of economic models, simultaneous equation problems, alternate estimation procedures, simulation models, econometric theory in matrix form, use of computer packages and solution of practical econometric problems.  
**Prerequisites:** Economics 315; Mathematics 211; Economics 301 and 303 or consent of the Department.  

**Economics 423**  
**International Macroeconomics**  
Foreign exchange markets, and international macroeconomic connections with trade in assets as wells as goods and services. Topics include: alternative exchange rate regimes; monetary and fiscal policy responses to problems of unemployment and inflation; balance of payments adjustment mechanisms; international debt; and Euro-dollar markets.  
**Prerequisite:** Economics 303 or 313 or consent of the Department.  

**Economics 425**  
**International Trade**  
The general equilibrium treatment of the gains from trade, comparative advantage and trade patterns provides a basis for examining topics such as: trade policy under imperfect competition, trade policy and the environment, trade policy and economic growth, and preferential trading arrangements.  
**Prerequisite:** Economics 309 or 357 or consent of the Department, or Corequisite: Economics 357.  
Completion of Economics 321 is recommended but not necessary.  

**Economics 431**  
**The Canadian Labour Market**  
Economic analysis of migration, labour force participation, education, fertility, manpower policy, and the measurement and treatment of unemployment.  
**Prerequisites:** Economics 301 or 309; and 303 or 313; or consent of the Department.  

**Economics 433**  
**Wage Determination**  
Wage and income determination; policies dealing with employment discrimination; and income redistribution.  
**Prerequisite:** Economics 301 or 309 or consent of the Department.  

**Economics 441**  
**Financial Markets and Institutions**  
A financial practitioner’s approach to the study of the structure, function, and management of financial markets and institutions. Extensive coverage of the money and capital markets, banking regulation and supervision, and the role of investment banks and venture capital in the economy. Explores modern financial institution management (particularly using financial derivatives).  
**Prerequisites:** Economics 303 and 341; or consent of the Department.  

**Economics 443**  
**The Economics of Financial Markets**  
An introduction to the basic functions and structure of financial markets, and an analysis of the economic aspects of pricing decisions in securities markets. Institutional features, theoretical pricing and trading strategies in bond, stock, options, forward and futures markets will be examined.  
**Prerequisites:** Economics 341 and 357; or consent of the Department.  

**Economics 453**  
**Cost-Benefit Analysis**  
Theoretical basis for social cost-benefit analysis, appraisal techniques for investment projects and public policies, and selected applications.  
**Prerequisite:** Economics 357 or consent of the Department.  

**Economics 465**  
**Industrial Development of Alberta**  
Structure, growth and development of the provincial economy; evaluation of industrial projects and policy alternatives.  
**Prerequisites:** Economics 301 or 309; and 303 or 313; or consent of the Department.  

**Economics 471**  
**Industrial Organization**  
Behaviour of firms in imperfectly competitive markets. Topics include the theory of strategic competition; dynamic price competition and tacit collusion; product differentiation, product selection, and preemption; entry deterrence and capacity competition; information, reputation, and predation; the economics of research and development; international trade and imperfectly competitive markets.  
**Prerequisite:** Economics 357 or consent of the Department.  

**Economics 475**  
**Economics of Natural Resources I**  
Application of economic theory to the problems of natural resource pricing, allocation and conservation. Rent theory, location theory, intertemporal maximization, Natural resource policy formulation. Contemporary Canadian resource problems.  
**Prerequisite:** Economics 357 or consent of the Department.  

**Economics 477**  
**Regulatory Economics**  
An introduction to economic regulation, its rationale, form and effects with a focus on the economic theory of regulation and on the practice, structure, and evolution of Canadian regulatory institutions.  
**Prerequisite:** Economics 301 or 309, or consent of the Department.  

**Economics 479**  
**Experimental Economics**  
Introduces students to the use of and insights gained from experiments in economic research. Develops many of the concepts from Economics 301/357, shedding new light on the assumptions of rationality, the design of markets, and the implementation of market institutions. Covers not only experimental methods but also some of the most important papers in the field. As part of the course, students will be participating in a variety of in-class experiments.  
**Prerequisites:** Economics 315 and 357.  

**Economics 481**  
**Behavioural Economics**  
Major factors underlying economic behaviour including: various views of the role of rationality in economic analysis and in the economic decision making of individuals and institutions; determinants of individual preferences and decision making procedures; the experimental analysis of economic behaviour; inter-relations between the operation of the economic system and feelings of subjective well-being.  
**Prerequisite:** Economics 357 or consent of the Department.  

**Economics 483**  
**History of Economic Thought**  
Traces the evolution of economic ideas from the earliest times up to and including the contributions of the classical economists and Marx. Emphasis will be on understanding these contributions both in terms of their historical context and their relationship to present-day theories and controversies.  
**Prerequisites:** Economics 301 or 309; and 303 or 313; or consent of the Department.  

**Economics 491**  
**Comparative Economic Systems**  
A comparative study of theories of the organization of economic systems with reference to the economic institutions of contemporary societies. Selected examples of the mixed capitalist system, command economies and transitional systems embodying markets and economic planning.  
**Prerequisites:** Economics 301 or 309; and 303 or 313; or consent of the Department.  

**Economics 492**  
**Applied Energy Economics I**  
An examination of selected problems in applied energy economics.  
**Prerequisites:** Successful completion of all other required courses in the Applied Energy Economics program, with the exception of Economics 494, or consent of the Department.  
**Note:** Normally only available to students registered in the Applied Energy Economics program.  

**Economics 494**  
**Applied Energy Economics II**  
Participation in ongoing projects in applied energy economics at the Canadian Energy Research Institute (CERI).
Courses of Instruction

**Prerequisites:** Successful completion of all other required courses in the Applied Energy Economics program with the exception of Economics 492; or consent of the Department.

**Note:** Normally only available to students registered in the Applied Energy Economics program.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>Economics 499</td>
<td>Selected Topics in Economics II</td>
<td>H(3-0)</td>
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</table>

A decimated course in which topics will vary from year to year. Consult the timetable or the Department for the topics available in a given year.

**Prerequisites:** Economics 301 or 309; and Economics 303 or 313; or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Economics 521</td>
<td>Quantitative Economic Analysis</td>
<td>H(3-0)</td>
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</table>

Mathematical techniques of economic analysis. Required of and normally restricted to Master of Economics students.

**Prerequisite:** Consent of the Department.

**Note:** Credit for both Economics 521 and 387 will not be allowed.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>Economics 523</td>
<td>Ecomometrics</td>
<td>H(3-0)</td>
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</table>

Introduction to statistical techniques as they are used in Economics. Topics include: estimation and testing of hypotheses, single and simultaneous equation regression analysis, least squares and maximum likelihood estimation, and solution of practical econometric problems. Matrix notation is employed. Required of and normally restricted to Master of Economics students.

**Prerequisite:** Statistics 213 or equivalent; or consent of the Department.

**Prerequisite or Corequisite:** Economics 521.

**Note:** Credit for both Economics 523 and 315 will not be allowed.

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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>Economics 527</td>
<td>World Oil Economics</td>
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</table>

Analysis of the world oil industry in the post war period.

**Prerequisites:** Economics 301 or 309; and 303 or 313; or consent of the Department.

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<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>Economics 529</td>
<td>Microeconomics with Applications</td>
<td>H(3-0)</td>
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</table>

Intermediate microeconomic theory and welfare economics with special emphasis on applications. Topics include: demand theory and measurement; production and cost theory and measurement; market structure and pricing behaviour; pricing practices; regulation; antitrust law; and capital budgeting. Normally restricted to Master of Economics students.

**Prerequisite:** Consent of the Department. It is recommended that Economics 521 be taken prior to or concurrently with Economics 529.

**Note:** Credit for both Economics 529 and either 309 or 357 will not be allowed.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Economics 531</td>
<td>Macroeconomics with Applications</td>
<td>H(3-0)</td>
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</tbody>
</table>

Intermediate macroeconomic theory with special emphasis on applications. Topics include: basic theories concerning employment, output, interest rates, the price level, business cycles and growth; contemporary thought on macro problems such as unemployment, inflation, and balance of payments disequilibrium; and Canadian macroeconomic policy issues. Normally restricted to Master of Economics students.

**Prerequisite:** Consent of the Department. It is recommended that Economics 521 be taken prior to Economics 531.

**Note:** Credit for both Economics 531 and either 313 or 359 will not be allowed.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 537</td>
<td>Theory and Policy of Economic Development</td>
<td>H(3-0)</td>
</tr>
</tbody>
</table>

Classical and Marxian theories of economic development, and theories of dual economy, balanced and unbalanced growth, population, choice of techniques, etc. A critical examination of the current national and international policies affecting economic development of developing countries will also be undertaken.

**Prerequisites:** Economics 301 or 309; and 303 or 313; or consent of the Department.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 541</td>
<td>Monetary Theory</td>
<td>H(3-0)</td>
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</table>

A survey of recent work in monetary theory with primary emphasis on financial issues.

**Prerequisites:** Economics 341 and 357 and 359; or consent of the Department.

**Prerequisite or Corequisite:** Economics 315.

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 557</td>
<td>Topics in Economic Theory I</td>
<td>H(3-0)</td>
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</tbody>
</table>

Topics in microeconomic theory such as welfare economics and general equilibrium theory.

**Prerequisites:** Economics 357 and 389; or consent of the Department.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 559</td>
<td>Topics in Economic Theory II</td>
<td>H(3-0)</td>
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</table>

Topics in macroeconomic theory such as consumption and growth.

**Prerequisites:** Economics 315 and 359 and 389; or consent of the Department.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 571</td>
<td>Competition Policy</td>
<td>H(3-0)</td>
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</tbody>
</table>

The law and economics of competition policy. An examination of the economics, jurisprudence and history of competition policy towards mergers, price fixing, vertical restraints, and monopolization, primarily in Canada and the United States.

**Prerequisite:** Economics 471.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 575</td>
<td>Economics of Natural Resources II</td>
<td>H(3-0)</td>
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</table>

A variety of topics in the area of Natural Resource Economics. Resource production and exhaustion, resources management and conservation, and substitutions between natural resources may be examined.

**Prerequisite:** Economics 475 or consent of the Department.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 599</td>
<td>Selected Topics in Economics III</td>
<td>H(3-0)</td>
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</tbody>
</table>

A decimated course in which topics will vary from year to year. Consult the timetable or the Department for the topics available in a given year.

**Prerequisites:** Economics 357 and 359; or consent of the Department.

**MAY BE REPEATED FOR CREDIT**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 601</td>
<td>Advanced Econometrics I</td>
<td>H(3-0)</td>
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</tbody>
</table>

Provides students with an opportunity to apply microeconomic and macroeconomic theories to issues that are of interest to professional economists.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Economics 607</td>
<td>Advanced Econometrics II</td>
<td>H(3-0)</td>
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</tbody>
</table>

Prerequisite: Economics 605.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 608</td>
<td>Independent Study</td>
<td>H(3-0)</td>
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</tbody>
</table>

**MAY BE REPEATED FOR CREDIT**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 615</td>
<td>Advanced Econometrics I</td>
<td>H(3-0)</td>
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</tbody>
</table>

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 617</td>
<td>Advanced Econometrics II</td>
<td>H(3-0)</td>
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</table>

Prerequisite: Economics 615 or consent of the Department.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 619</td>
<td>Economics of International Commercial Policy</td>
<td>H(3-0)</td>
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</tbody>
</table>

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 621</td>
<td>International Trade</td>
<td>H(3-0)</td>
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</tbody>
</table>

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 623</td>
<td>International Finance</td>
<td>H(3-0)</td>
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 625</td>
<td>The Economics of the Petroleum Industry</td>
<td>H(3-0)</td>
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</table>

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Economics 627</td>
<td>Energy in the Production Sector of the Economy</td>
<td>H(3-0)</td>
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Economics 633</td>
<td>The Nature and Structure of the Labour Market</td>
<td>H(3-0)</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Economics 635</td>
<td>Regulatory Economics</td>
<td>H(3-0)</td>
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</table>
### Economics Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>Economics 637</td>
<td>H(3-0)</td>
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<tr>
<td>Economics 641</td>
<td>H(3-0)</td>
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<tr>
<td>Economics 653</td>
<td>H(3-0)</td>
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<tr>
<td>Economics 655</td>
<td>H(3-0)</td>
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<tr>
<td>Economics 657</td>
<td>H(3-0)</td>
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<td>Economics 659</td>
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<td>Economics 663</td>
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<td>Economics 667</td>
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<td>Economics 675</td>
<td>H(3-0)</td>
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<tr>
<td>Economics 677</td>
<td>H(3-0)</td>
</tr>
<tr>
<td>Economics 679</td>
<td>H(3-0)</td>
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</tbody>
</table>

**Not Included in GPA**

- **Education Teacher Preparation**
  - EDTP 502 F(3-1S-7) Learners and Learning
  - EDTP 504 M(4-2S-7) Teachers and Teaching
  - EDTP 506 F(3-1S-7) Curriculum Contexts
  - EDTP 508 M(4-2S-7) Curriculum Studies
  - EDTP 510 M(3-2S-28) Praxis

**Senior Courses**

In addition to the numbered and titled courses shown above, the Department offers a selection of advanced level Graduate Courses specifically designed to meet the needs of individuals or small groups of students. These courses are numbered in the series 800.01 to 899.99. Such offerings are, of course, conditional upon the availability of staff resources.

**Note:** This course carries a weight of two and one-half full courses.

**Education Teacher Preparation 512** M(6-2S-14) Integration

Integration of theoretical and practical understandings of teaching and learning. Emphasis placed on the relationships among teaching and learning, institutional contexts, professional ethics, and moral dimensions of education.

Prerequisite: Education Teacher Preparation 510.

**Note:** This course carries a weight of two and one-half full courses.

**Education Teacher Preparation 597** H (0-3) Practicum in Designated Settings

**Education Teacher Preparation 598** F(3-0) Special Topics in Teacher Preparation

**Special Topics in Teacher Preparation**

**Education Teacher Preparation 599** H(3-0) Graduate Research Seminar

**Special Topics in Teacher Preparation**

**Educational Research 600** F(3-0) Seminar for First-Year MA/MSc Students

### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>Educational Research 601</td>
<td>H(3-0)</td>
</tr>
<tr>
<td>Educational Research 603</td>
<td>H(3-0)</td>
</tr>
</tbody>
</table>

**Educational Research 611** H(3-0) Communication in Educational Administration

To explore dominant areas of interpersonal communication which constantly challenge educational leaders.
Courses of Instruction

Educational Research 613 H(3-0)
Change and Innovation in Education
Examines both traditional and contemporary research literature relevant to change and innovation in educational settings.

Educational Research 615 H(3-0)
Organizational Behaviour in Education
The behaviour of individuals and groups in the organizational context: Schools and educational organizations as a special case.

Educational Research 617 H(3-0)
Organizational Theory and Analysis in Education
Human organization as the setting for the delivery of educational services.

Educational Research 619 H(3-0)
Special Topics in Educational Leadership
Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 621 H(3-0)
Assessment of Classroom Learning
Examines both traditional and emerging assessment techniques, including Performance Assessment and Learning Portfolios, for examining students' learning outcomes.

Educational Research 625 H(3-0)
Teacher Evaluation
Examines both traditional and emerging techniques, e.g. Portfolios, for assessing teacher performance.

Educational Research 627 H(3-0)
Program Evaluation
Systematically examines the evaluation enterprise including concepts, procedures and uses of evaluation. Prerequisite: Educational Research 601 or equivalent.

Educational Research 629 H(3-0)
Special Topics in Assessment/Evaluation
Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 640 F(3-0)
Teaching and Learning Across the Curriculum
Develops a critical foundation for understanding and promoting active learning across the subject areas. Note: Not open to students with credit in Educational Research 649.05 or 699.44.

Educational Research 641 H(3-0)
Research on the Reading Process
Examination and criticism of competing theoretical discourses about the teaching and learning of reading in the elementary school.

Educational Research 643 H(3-0)
Foundational Research in Language Arts Teaching
Theory, research, and advocated instructional practices. Emphasis on the role of oral language in classrooms and the teaching of writing.

Educational Research 645 H(3-0)
Implications of Literacy
Exploration of the implications of literacy on both a societal and individual level; attention to specialized literacies of our culture. Note: Not open to students with credit in Educational Research 649.05 or 699.44.

Educational Research 649 H(3-0)
Special Topics in English Language Education
MAY BE REPEATED FOR CREDIT

Educational Research 651 H(3-0)
Philosophy of Education
Philosophical topics in the context of education. Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 653 H(3-0)
Sociology of Education
Sociological topics in the context of education. Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 655 H(3-0)
Comparative Education
Topics in comparative education. Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 657 H(3-0)
Culture and Gender Studies
Culture and gender topics in the context of education. Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 659 H(3-0)
History of Education
Historical topics in the context of education. Consult current timetable for offerings. MAY BE REPEATED FOR CREDIT

Educational Research 665 H(3-0)
Interpretive Curriculum Discourses
The field of interpretive work in curriculum theory.

Educational Research 667 H(3-0)
Second Language Reading and Writing
Research and practice in second language reading and writing; instructional techniques for specific audiences; theories of reading and writing.

Educational Research 669 H(3-0)
Aspects of Second Language and Culture
Introduction to research and issues on various aspects of second language and culture. MAY BE REPEATED FOR CREDIT

Educational Research 671 H(3-0)
Conceptualizing Educational Technology
Seminar to familiarize students with the terrain of educational technology.

Educational Research 673 H(3-0)
Instructional Design
Integration of theory and practice associated with the selection and sequencing of content across the instructional spectrum and the matching of instructional strategies to characteristics of learners and content.

Educational Research 675 H(3-0)
Principles of Instructional Development
Topics include the examination of a variety of instructional development models, the systems approach to developing instruction, front-end analysis and needs assessment, risk analysis, constraint analysis, resource analysis, task analysis, and evaluation.

Educational Research 677 H(3-0)
Distributed Learning
Examination of distributed teaching and learning processes in educational systems with attention to computer mediated teaching and communication and integrated instructional design methodologies. Other topics include media selection, online team-building, social context issues, and leadership of distributed learning organizations.

Educational Research 679 H(3-0)
Special Topics in Educational Technology
Examination of current topics and issues in educational technology and related areas. MAY BE REPEATED FOR CREDIT

Educational Research 681 H(3-0)
Studying Curriculum
Curriculum research, theory, and practice with particular reference to curriculum aims, content, organization and change. Note: Not open to students with credit in Educational Research 665, 669.27 or 699.42.

Educational Research 683 H(3-0)
Curriculum Development, Implementation and Assessment
Making sense of what happens when curriculum policy becomes reality and affects students, teachers, parents and politicians.

Educational Research 685 H(3-0)
Professional Project
Seminar course to facilitate the preparation and evaluation of an independent culminating project.
Courses of Instruction

Education Research 691 H(3-0)  
Critical Issues in Education

Culminating course focusing on the integration and application of major themes covered in student's program.

Educational Research 697 Q(1.5-0)  
Special Topics
MAY BE REPEATED FOR CREDIT

Educational Research 698 F(3-0)  
Special Topics
MAY BE REPEATED FOR CREDIT

Educational Research 700 F(3-0)  
Seminar for First-Year PhD.Ed.D Students

Seminar on selected topics.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
NOT INCLUDED IN GPA

Educational Research 701 H(3-0)  
Advanced Research Methods

Advanced study in the conduct of research.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Educational Research 703 H(3-0)  
Directed Study

Individual doctoral study in a selected area.  
Prerequisite: Consent of the Division.  
MAY BE REPEATED FOR CREDIT

Educational Research 705 H(3-0)  
Doctoral Seminar in Educational Leadership

Provides doctoral students with a contemporary Canadian focus on significant issues in educational leadership.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Educational Research 719 H(3-0)  
Advanced Special Topics in Educational Leadership

Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Educational Research 741 H(3-0)  
Advanced Seminar in Theory and Research in Literacy Education

A critical examination of theories, models, and research that underpin literacy education.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Educational Research 761 H(3-0)  
Research Seminar on Second Language Education

Multidimensional perspectives on theory building about second language learning and teaching, including factors such as language, schooling, curriculum, culture, community and society.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.

Educational Research 763 H(3-0)  
Research Seminar on Current Issues in L2 Literacy

Current issues in L2 literacy, such as assessment theory and practice, literacy in social contexts, language proficiency, curriculum and pedagogy.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.

Educational Research 771 H(3-0)  
Doctoral Seminar in Educational Technology

Advanced doctoral seminar focused on defining issues and current research in educational technology.  
Prerequisite: Consent of the Division.  

Educational Research 781 H(3-0)  
Conceptualizing Curriculum Research

Analysis of different approaches to curriculum research, especially assumptions, meaning frameworks, and views of the theory/practice relationship.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.

Educational Research 783 H(3-0)  
Conceptualizing Instructional Research

Critical examination of various theoretical frameworks and representative studies in the literature of research on instruction.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.

Educational Research 785 H(3-0)  
Advanced Study of Interpretive Curriculum Discourses

An advanced study of interpretive curriculum discourses focussing on cutting-edge examples of such work.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.

Educational Research 789 H(3-0)  
Advanced Curriculum Study

Research and issues in the study of a variety of topics and areas concerning the school curriculum.  
Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Educational Research 797 Q(1.5-0)  
Advanced Special Topics

Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Educational Research 798 F(3-0)  
Advanced Special Topics

Prerequisite: Consent of the Division.  
Note: Normally restricted to Doctoral students.  
MAY BE REPEATED FOR CREDIT

Electrical Engineering 327 H(3-1T-3/2)  
Signals and Transforms


Electrical Engineering 329 H(3-1T-3)  
Circuits for Software Engineers

Basic circuit laws, node and mesh analysis. First order RC circuits. DC and transient analysis. Overview of basic semiconductor devices and circuits. Fundamentals of logic circuits. CAD tools for circuit analysis.

Electrical Engineering 341 H(3-1T-3)  
Circuits I

Definition of linear elements, independent and dependent sources, sign conventions; basic circuit laws, simple resistive circuits; node and mesh analysis, Thévenin, Norton and other theorems; inductance and capacitance. AC circuit analysis, impedance, admittance, phasor diagrams; average and effective values of waveforms, real, reactive and complex power, power calculations; mutual inductance, ideal transformer, introduction to balanced three-phase circuits, power calculation in three-phase circuits.

Electrical Engineering 343 H(3-1T-3)  
Circuits II

The operational amplifier. Natural and step
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineering 435</td>
<td>Digital Circuits</td>
<td>H(3-1T-3/2)</td>
</tr>
<tr>
<td></td>
<td>Combination logic: number systems, truth tables, Karnaugh maps, and combinational circuits. Sequential circuits, JK and D flip flops, state diagrams and synthesis techniques. Memory based logic functions. Gates, buffers, counters, multiplexers, demultiplexers and registers. Medium and large scale integration in sequential design.</td>
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<tr>
<td></td>
<td>Prerequisites: Computer Science Engineering 415 and one of Electrical Engineering 463 or Computer Engineering 467.</td>
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<tr>
<td>Electrical Engineering 436</td>
<td>Principles of Software Development</td>
<td>H(3-2)</td>
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<tr>
<td></td>
<td>A survey of software design and development topics for Electrical Engineering students. Topics include: key features of an object-oriented programming language, especially inheritance and polymorphism; elements of object-oriented design; programming and application of common data structures; strategies and tools for testing and debugging.</td>
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<tr>
<td></td>
<td>Prerequisites: Computer Science Engineering 339.</td>
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<tr>
<td>Electrical Engineering 441</td>
<td>Control Systems I</td>
<td>H(3-1T-3/2)</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Electrical Engineering 327.</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering 443</td>
<td>Digital Systems Design</td>
<td>H(3-1T-3/2)</td>
</tr>
<tr>
<td></td>
<td>Design, implementation and testing of a digital system. Mask programmable and field programmable logic. Logic design for integrated systems. Design for testability. Real versus ideal logic design. CAD tools for digital systems design; simulation, synthesis and fabrication.</td>
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</tr>
<tr>
<td></td>
<td>Prerequisites: Computer Science Engineering 415 and one of Electrical Engineering 463 or Computer Engineering 467.</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering 463</td>
<td>Electronic Devices and Circuits</td>
<td>H(3-1T-3/2)</td>
</tr>
<tr>
<td></td>
<td>Analysis and design of circuits containing diodes, bipolar transistors and MOSFETs. Physical operation of semiconductor devices. Current and voltage characteristics. Regions of operation. Large and small signal models. Diode and transistor circuits.</td>
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<tr>
<td></td>
<td>Prerequisites: Electrical Engineering 343 and 361.</td>
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</tr>
<tr>
<td>Electrical Engineering 465</td>
<td>Analog Integrated Electronics</td>
<td>H(3-1T-3/2)</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Electrical Engineering 435.</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering 471</td>
<td>Analog Communications</td>
<td>H(3-1T-3/2)</td>
</tr>
<tr>
<td></td>
<td>Fundamentals of communication systems; signals and system classifications. Signal analysis; Fourier series and Fourier transform. Systems analysis; filters, time-domain and Frequency-domain analysis. Analog modulation; linear continuous wave and nonlinear continuous wave modulation; generation and detection of analog modulated waves. Applications of analog modulation. Noise in analog modulation; comparison of analog modulations.</td>
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<tr>
<td></td>
<td>Prerequisites: Electrical Engineering 327.</td>
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<tr>
<td>Electrical Engineering 475</td>
<td>Fundamentals of Electromagnetic Fields</td>
<td>H(3-1T-3/3)</td>
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<tr>
<td></td>
<td>The Field approach to steady electric and magnetic fields. Electric and magnetic potential gradients. Gauss’s laws, Laplace’s and Poisson’s equations, graphical field mapping, finite difference methods, conservation of charge and equation of continuity. Quasi-static fields, Faraday’s law, magnetic circuits and materials. Maxwell’s equations, boundary conditions at the interface between two media. Wave equations, uniform plane wave propagation, polarization, loss tangent, skin effect, poynting vector and electromagnetic power flow. Reflection and refraction of uniform plane waves, interference phenomenon, standing wave ratio, impedance matching.</td>
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<tr>
<td></td>
<td>Prerequisites: Physics 329 and Applied Mathematics 309.</td>
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<tr>
<td>Electrical Engineering 489</td>
<td>Electric Machines: Steady-State</td>
<td>H(3-1T-3/2)</td>
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<tr>
<td></td>
<td>dc and ac excitation of magnetic circuits; transformer; principles of electromechanical energy conversion. Steady-state analysis and operation of dc, synchronous and induction machines.</td>
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<tr>
<td></td>
<td>Prerequisites: Electrical Engineering 341.</td>
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<tr>
<td>Electrical Engineering 519</td>
<td>Special Topics in Electrical Engineering</td>
<td>H(3-2)</td>
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<td></td>
<td>Current topics in electrical engineering.</td>
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<td>Prerequisites: Consent of the Department.</td>
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<td>Note: Consult Department for announcement of topics.</td>
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<td>MAY BE REPEATED FOR CREDIT</td>
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<tr>
<td>Electrical Engineering 525</td>
<td>Digital and Communication Systems</td>
<td>H(3-2)</td>
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<td>Formerly Electrical Engineering 519.17.</td>
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<tr>
<td>Electrical Engineering 527</td>
<td>Design and Implementation of FPGA-Based DSP Systems</td>
<td>H(3-2)</td>
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<td></td>
<td>The design and implementation of digital systems for digital signal processing applications. Introduction to Hardware Design Languages. VHDL. Introduction to digital filter design and computational units for digital arithmetic. Interface standards, interfacing to microprocessors, printed circuit board design and implementation. Design for testability.</td>
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<td></td>
<td>Prerequisites: Electrical Engineering 435 and 471.</td>
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<tr>
<td>Electrical Engineering 529</td>
<td>Wireless Communications Systems</td>
<td>H(3-T-1/1)</td>
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<td></td>
<td>Overview of terrestrial wireless systems including system architecture and industry standards; propagation characteristics of wireless channels; modems for wireless communications; cells and cellular traffic; cellular system planning and engineering; fading mitigation techniques in wireless systems; multiple access techniques for wireless systems.</td>
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<td>Prerequisites: Engineering 319 and Electrical Engineering 471.</td>
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<tr>
<td>Electrical Engineering 541</td>
<td>Control Systems II</td>
<td>H(3-1T-3/2)</td>
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<td>Introduction to sampled-data control systems, discretization of analog systems, discrete-time signals and systems, causality, time-invariance, z-transforms, stability, asymptotic tracking, state-space models, controllability and observability, pole assignment, deadbeat control, state observers, observer-based control design, optimal control.</td>
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<td>Prerequisites: Electrical Engineering 441.</td>
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<tr>
<td>Electrical Engineering 559</td>
<td>Analog Filter Design</td>
<td>H(3-2)</td>
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<td>This class deals with the theory and design of active filters, for audio-frequency applications, using op amps. It consists, basically, of two phases. Phase I deals with the realization of a given transfer function using cascade of first and second-order RC-op amps circuits. In phase II, the transfer functions of filters are studied in combination with frequency-response approximations such as Butterworth, Chebyshev, Inverse-Chebyshev, Cauer (or Elliptic) and Bessel-Thompson.</td>
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<td>Prerequisites: Electrical Engineering 465 and 471.</td>
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<td>Course Code</td>
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<td>Electrical Engineering 563</td>
<td>H(3-1T-2)</td>
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<tr>
<td>Electrical Engineering 565</td>
<td>H(3-1T-3/2)</td>
<td>Digital Integrated Electronics</td>
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<td>Electrical Engineering 567</td>
<td>H(3-1T-3/2)</td>
<td>CMOS VLSI Engineering</td>
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<tr>
<td>Electrical Engineering 573</td>
<td>H(3-1T-1)</td>
<td>Telecommunications and Computer Communications</td>
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<tr>
<td>Electrical Engineering 575</td>
<td>H(3-1T-3/2)</td>
<td>Microwave Circuits and Antennas</td>
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<tr>
<td>Electrical Engineering 583</td>
<td>H(2-4)</td>
<td>Electrical Engineering 585</td>
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<td>Electrical Engineering 587</td>
<td>H(3-1.5T-3/4)</td>
<td>Power Systems: Steady State</td>
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<tr>
<td>Electrical Engineering 598</td>
<td>F(2-4)</td>
<td>Individual Electrical Engineering Research Project</td>
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<tr>
<td>Electrical Engineering 599</td>
<td>H(2-4)</td>
<td>Individual Electrical Engineering Project</td>
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</table>

**Electrical Engineering 589** | H(2-4)  | Fourth Year Electrical Engineering Team Design Project, Part B | Continues upon the foundations of theory, experience and practice of project management established in Part A. The detailed low-level project design developed by the team in Part A will be implemented. Unit tested, integrated and system tested before undergoing customer trials. The project is executed and progress is measured against a plan developed by the participants. |

**Electrical Engineering 591** | H(2-4)  | Individual Electrical Engineering Project, Part II | This individual project is intended for students who have completed a suitable Electrical Engineering 599 Individual Project and wish to continue the assigned research project by completing a more extensive investigation. A comprehensive written report is required which is defended and presented orally in a departmental seminar. |

**Electrical Engineering 598** | F(2-4) | Individual Electrical Engineering Research Project | The project involves individual work on an assigned Electrical Engineering research topic under the supervision of a Departmental faculty member. Submission and defense of a mid-year written report is required. A final comprehensive written report is required which is defended and presented orally in a departmental seminar format. |

**Electrical Engineering 599** | H(2-4)  | Individual Electrical Engineering Project | This project involves individual work on an assigned Electrical Engineering topic under the supervision of a Departmental faculty member. The project is executed and progress is measured against a plan developed by the participants. |

**Electrical Engineering 591** | H(2-4)  | Individual Electrical Engineering Project, Part II | This individual project is intended for students who have completed a suitable Electrical Engineering 599 Individual Project and wish to continue the assigned research project by completing a more extensive investigation. A comprehensive written report is required which is defended and presented orally in a departmental seminar. |

**Electrical Engineering 598** | F(2-4) | Individual Electrical Engineering Research Project | The project involves individual work on an assigned Electrical Engineering research topic under the supervision of a Departmental faculty member. Submission and defense of a mid-year written report is required. A final comprehensive written report is required which is defended and presented orally in a departmental seminar format. |

**Electrical Engineering 599** | H(2-4)  | Individual Electrical Engineering Project | This project involves individual work on an assigned Electrical Engineering topic under the supervision of a Departmental faculty member. The project is executed and progress is measured against a plan developed by the participants. |
Courses of Instruction

a faculty member. The topic would normally involve a literature review, theoretical and experimental or computer work. Submission and defence of a written formal report is required.

Prerequisite: Formal approvals from the project supervisor and course coordinator(s).

Graduate Courses

Registration in all courses requires the approval of the Department of Electrical and Computer Engineering.

Electrical Engineering 601  H(3-1.5)

Power System Operation


Electrical Engineering 603  H(3-0)

Rotating Machines


Electrical Engineering 605  Q(1.5S-0)

Research Seminar

Reports of studies of the literature or of current research. This course is compulsory for all full-time graduate students.

NOT INCLUDED IN GPA

Electrical Engineering 607  Q(1.5S-0)

Research Seminar

Reports of studies of the literature or of current research. This course is compulsory for all full-time graduate students.

NOT INCLUDED IN GPA

Electrical Engineering 609  Q(3-1)

Special Topics

Designed to provide graduate students, especially at the PhD level, with the opportunity of pursuing advanced studies in particular areas under the direction of a faculty member.

MAY BE REPEATED FOR CREDIT

Electrical Engineering 611  H(3-1)

Digital Systems

Introduction to digital system design for mask programmable and field programmable gate arrays. CMOS digital logic design. Flip-flop timing and metastability. Design for testability. CAD tools for digital systems design.

Electrical Engineering 619  H(3-1)

Special Problems

Designed to provide graduate students, especially at the PhD level, with the opportunity of pursuing advanced studies in particular areas under the direction of a faculty member.

MAY BE REPEATED FOR CREDIT

Electrical Engineering 623  H(3-1)

Biomedical Instrumentation


Electrical Engineering 625  H(3-1)

Detection and Estimation Theory

Detection and estimation theory as it is applied in communication systems, as well as measurement systems in radar, biomedical engineering, geomatics etc. The specific topics covered are: Sufficient statistics, Hypothesis testing, Neyman-Person Detectors, Bayesian Detectors, Minimum Variance Unbiased Estimators, Maximum Likelihood Estimators, Cramer-Rao Lower Bounds, Bayesian Estimators, Minimum Mean Squared Error Estimators, Least Squares Estimators, Linear Prediction. Applications in communications and measurement systems. An emphasis will be put upon modern methods in detection and estimation, in particular subspace methods.

Electrical Engineering 627  H(3-1)

Analog Circuits

The topics covered are: two-level and multi-level logic synthesis; flexibility in logic design; multiple-valued logic for advanced technology; multi-level minimization; Binary Decision Diagrams, Word-level Decision Diagrams, sequential and combinational equivalence checking; technology mapping; technology-based transformations; logic synthesis for low power, optimizations of synchronous and asynchronous circuits, logical and physical design from a flow perspective.

Electrical Engineering 631  H(3-1)

System Identification and Parameter Estimation


Electrical Engineering 633  H(3-1)

Wireless Networks


Electrical Engineering 639  H(3-1)

Radio Frequency and Microwave Circuit Design

Circuit design via transmission line elements: special emphasis on microstrip circuits and effects of discontinuities (corners, Tees, and impedance steps). Analysis of passive impedance matching and filtering circuits using distributed and lumped elements. Narrow band matching and wide band matching techniques as well as wide band matching to a complex load. One and two port small signal amplifiers. Scattering parameter design methods: amplifier gain, input and output matching and stability. Computer aided design methods and broadband design methods. Large signal transistor amplifiers: device nonlinearities and design methodologies.

Electrical Engineering 643  H(3-1)

Fibre Optics Transmission

Fundamental theory of cylindrical optical waveguides by way of Maxwell's equation and the modal analysis of the slab waveguides, step-index and graded-index fibres, review of fibre chemistry and production techniques. Problem areas relating to measurement of fibre parameters. Operation of optical fibres, optical connectors, photodetectors and receivers, modulation and multiplexing techniques, splices and connectors. Multimodal and digital system analysis and design. Optical switching and amplification, integrated optics.

Electrical Engineering 647  H(3-1)

Analog Integrated Circuit Design


Electrical Engineering 655  H(3-1)

Discrete Time Signal Processing

Discrete-time signals and systems, discrete-time Fourier transform and Fourier series, discrete-time random signals, linear-time invariant systems.
Courses of Instruction

Energy and the Environment/Engineering


Electrical Engineering 659 H(3-1)
Active-RC and Switched-Capacitor Filter Design
The filter design problem; operational amplifier characteristics; cascade methods of RC-active filter design; filter design with the active biquad; active filter design based on a lossless ladder prototype. Switched-capacitor (SC) integrators; design of cascades, ladder, and multiple feedback SC filters; nonideal effects in SC filters; scaling of SC filters; topics in fabrication of SC filters.

Electrical Engineering 671 H(3-1)
Adaptive Signal Processing

Electrical Engineering 673 H(3-1)
Wireless Communications Engineering
The basics of mobile radio telephone: mobile telephone frequency channels, components of mobile radio, objectives of mobile telephone systems, major problems and tools available. The mobile radio environment: fading and propagation loss, propagation loss prediction, channel and signal models, fading statistics, classification of fading channels. Methods of reducing fading effects: diversity techniques and diversity combining methods. Signaling over fading channels: Frequency reuse schemes; cellular concept, mobile radio interference, FDMA, TDMA, and spread spectrum techniques. Portable systems, air-to-ground systems, and land mobile/satellite systems, processing.

Electrical Engineering 675 H(3-1)
Introduction to Data Communications

Electrical Engineering 677 H(3-1)
Advanced Data Communications

Electrical Engineering 687 H(3-1)
Switch Mode Power Converters
Design and analysis of dc-to-dc and ac-to-ac single-phase power converters. Device characteristics. Dc-to-dc topologies, dc-to-ac topologies and ac-to-ac topologies. Linearized models. Classical feedback control; introduction to state-space analysis methods. Input harmonic analysis, output harmonic analysis, and techniques to obtain unity input power factor.

Digital Image Processing

Electrical Engineering 697 H(3-1)
Graduate Project
Individual project in the student's area of specialization under the guidance of the student's supervisor. A written proposal, one or more written progress reports, and a final written report are required. An oral presentation is required upon completion of the course. Open only to students in the MEng Courses Only Route.

Electrical Engineering 699 H(3-1)
Multidimensional Signal Processing

Energy and the Environment ENEV
Instruction offered by members of the Faculties of Engineering, Environmental Design, Law and the Haskayne School of Business.

Energy and the Environment 603 H(3-0)
Energy Systems I: Non-Renewable Energy
Study renewable energy sources as prospective energy suppliers for the future, along with conditions for sustained implementation of renewable energy technologies (biomass, solar, wind, geothermal, cogeneration).

Energy and the Environment 605 H(3-0)
Ecoology and Environmental Chemistry
Chemical concepts and processes for understanding and managing air, water and earth ecological systems.

Energy and the Environment 607 H(3-0)
Water Pollution and Its Impact on the Energy Sector
Causes and consequences of water pollution and management practices and technologies for prevention, mitigation and control of pollutant effluents.

Energy and the Environment 609 H(3-0)
Air Pollution and Its Impact on the Energy Sector
Causes and consequences of air pollution and management practices and technologies for prevention, mitigation and control of pollutant emissions.

Energy and the Environment 611 H(3-0)
Land Pollution and Waste Management in the Energy Sector
Causes and consequences of land pollution and management practices and technologies for prevention, mitigation and control of waste management principles and effective practices.

Energy and the Environment 613 H(3-0)
Energy Systems III: Planning and Energy Economics
Financial principles and evaluation techniques and their application to energy investment planning and to assessment of energy conservation opportunities and policies.

Energy and the Environment 615 H(3-0)
Environmental Impact Assessment in the Energy Sector
Techniques, principles and practices for environmental impact assessment, with application to energy development projects.

Energy and the Environment 617 H(3-0)
Human Resource and Management in the Energy Sector
The major concepts and theories of management and organizational dynamics as they impact on the energy sector; interpersonal effectiveness and self awareness, motivation, group dynamics, project teams, supportive communication, stress, leadership, power, influence and conflict, organizational culture, processes of change. An application, skill development, managerial issues, and workplace trends focus.
Energy and the Environment 619 H(3-0)
**Environmental Law in the Energy Sector**
Legal systems, nature and sources; international environmental law and its implementation; fundamental legal concepts including jurisdiction, procedural fairness, liability, property and contract; environmental regulatory systems and alternative instruments; judicial review; enforcement and compliance; non-judicial dispute resolution.

Energy and the Environment 621 H(3-0)
**Environmental Management Tools in the Energy Sector**
Environmental management tools including strategic policies; structures; impact and production assessment; audits; indicators and reporting; life cycle assessment; risk management; and economic instruments.

Energy and the Environment 623 H(3-0)
**Strategic Environmental Planning for Energy Organizations**
A strategic approach to managing environmental and social issues facing energy organizations and its economic rationale in a competitive global market place.

Energy and the Environment 625 H(3-0)
**Interdisciplinary Team Project**
An environmental situation or issue which students are expected to research and prepare a plan to address.

Energy and the Environment 627 H(3-0)
**Major Project**
Completion and presentation of an individual project that is related to an environmental issue or problem faced by the sponsoring energy enterprise or government department in the country that the participant comes from. Participants in the Master’s program will define the project in advance of the fourteen months program and will work on the major project throughout the fourteen months of the program.

Energy and the Environment 629 H(3-0)
**Advanced Seminars**
MAY BE REPEATED FOR CREDIT NOT INCLUDED IN GPA

Energy and the Environment 631 H(3-0)
**Introduction to Energy and the Environment in Latin America**
Introduction to energy project management in the Latin American and Caribbean (LAC) regions with a focus on sustainable development and environmental management strategies.

**Prerequisite:** Consent of the Program Director.

Energy and the Environment 699 H(3-0)
**Topics in Energy and the Environment**
Intensive study of selected topics in energy and the environment and related subjects. Course will reflect changing content needs and faculty interests.

**Prerequisite:** Consent of the Program Director.

MAY BE REPEATED FOR CREDIT

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**Engineering 201** H(3.15T-3/2)
**Behaviour of Liquids, Gases and Solids**
An introduction to the behaviour of fluids and solids; phase transformations, the phase rule and phase diagrams. Ideal and real gases; equations of state and their engineering applications; simple kinetic theory; transport properties of fluids. Liquid state; vapor pressure; shear behaviour; flow of fluids in pipelines. Solids; crystalline and non-crystalline structure; non equilibrium solid phases; electrical and thermal conductivity; dislocations; stress and strain; creep; fracture.

**Engineering 205** H(3-1.5T)
**Engineering Mechanics I**
Statics: Force vectors; equilibrium of particles in two and three dimensions; force system resultants; equilibrium of a rigid body in two and three dimensions; trusses; frames, machines and beams. Dynamics: Kinematics and kinetics of particles.

**Note:** Not open to students with credit in Engineering 203.

**Engineering 209** H(3-1T)
**Engineering Economics**
The basic tools and methodology of engineering economic studies. Topics include investment decisions, theory of replacement, economies of scale, externalities, social decision making and government regulation. Examples are drawn from engineering projects.

**Prerequisite:** Registration in the Faculty of Engineering with second-year standing or higher. If not registered in the Faculty of Engineering, consent of the Department of Economics.

**Engineering 233** H(3-2)
**Computing for Engineers I**
Overview of computer systems. Functions of software components: operating systems, editors, compilers. Programming in a high-level language: selection and loop structures, routines, array and record types, text file operations. Introduction to object-based programming: use of class libraries and construction of simple classes.

**Engineering 251** H(1-4.5)
**Design and Communication I**
The principles of engineering design, engineering graphics and written communication learned within a hands-on project-based experience for engineering students. Safety in the laboratory; working in a team environment; core skills for engineering students; process of engineering design; graphical communication: theory of projection, multiview representation, descriptive geometry, sketching; information for manufacturing; written communication: style, format, organization, preparation and presentation skills. Real-life examples of design and engineering practice across all disciplines. Core competencies will be learned primarily within the context of team-based design projects.

**Note:** Not open to students with credit in Engineering 215.

**Engineering 253** H(1-4.5)
**Design and Communication II**
A continuation of Engineering 251. Students will perform more advanced team-based projects that integrate mathematical, scientific and engineering knowledge and skills. Issues that play critical roles in engineering design will be introduced, such as project management, societal and environmental awareness, health and safety, design for safety, sustainable development, information access.

**Prerequisite:** Engineering 251.

**Senior Courses**

**Engineering 311** H(3.15T-3/2)
**Engineering Thermodynamics**
Thermodynamic systems, properties and state, energy, temperature and the zeroth law, equilibrium, properties of the pure substance, equations of state. Work, reversibility, heat, first law, specific heats, enthalpy, ideal gas, flow systems. Entropy and the second law, Carnot cycle, thermodynamic temperature scale, process equations, cycles, process efficiencies, calculation of entropy change.

**Prerequisites:** Engineering 201 and Applied Mathematics 217.

**Engineering 317** H(3-1.5T-3/2)
**Mechanics of Solids**
Axial-force, shear-force and bending moment diagrams; stress and strain; stress-strain relations; elastic and plastic behaviour; elastic constants; simple statically indeterminate (one-degree) problems; review of moment of inertia, product of inertia and principal axes of inertia; elastic torsion of circular shafts; elastic and plastic bending about principal axes of beams with symmetrical cross-section; composite beams; shear stresses due to bending; Mohr’s circle for stress; thin-walled pressure vessels; deflection of beams by integration; Euler buckling.

**Prerequisites:** Engineering 205 (or 203) and Applied Mathematics 217.

**Engineering 319** H(3-1.5T)
**Probability and Statistics for Engineers**
Presentation and description of data, introduction to probability theory, Bayes theorem, discrete and continuous probability distributions, estimation, sampling distributions, tests of hypotheses on means, variances and proportions, simple linear regression and correlation. Applications are chosen from engineering practice.

**Prerequisite:** Applied Mathematics 219.

**Note:** Credit towards degree requirements will be given for only one of Anthropology 307, Applied Psychology 301/303, Engineering 319, Political Science 399, Psychology 312, Sociology 311, Statistics 211/211, 213/217, 333, 357; that one being a course(s) appropriate to the particular degree program.

**Engineering 325** H(3-1T-3/2)
**Electric Circuits and Systems**
Topics in electric circuits and electric systems related to engineering theory and practice in the areas of Chemical, Civil, Geomatics, Mechanical and Manufacturing Engineering.

**Prerequisite:** Physics 259.
Courses of Instruction

**Engineering 335**  
H(3-2)  
*Computing for Engineers II*  
Pointers and references, memory models and memory management. Abstract data types (ADTs); implementation of ADTs as classes. Introduction to object-oriented programming: inheritance and polymorphism. Introduction to recursion. Aspects of floating-point computation.  
**Prerequisite:** Engineering 233.

**Engineering 349**  
H(3-1.5T)  
*Engineering Mechanics II*  
**Prerequisites:** Engineering 205, Applied Mathematics 217 and 219.

**Engineering 391**  
Q(1.5-0)  
*Advanced Topics I*  
Advanced topics in engineering science and design. Registration in the course requires approval of the Associate Dean (Academic & Planning), Faculty of Engineering.  
**MAY BE REPEATED FOR CREDIT**

**Engineering 393**  
H(3-0)  
*Advanced Topics II*  
Advanced topics in engineering science and design. Registration in the course requires approval of the Associate Dean (Academic & Planning), Faculty of Engineering.  
**MAY BE REPEATED FOR CREDIT**

**Engineering 407**  
H(3-2)  
*Numerical Methods in Engineering*  
The theory and use of numerical computational procedures to solve engineering problems. Methods for solution of nonlinear equations, solution of simultaneous linear equations, curve fitting, solution of the algebraic eigenvalue problem, interpolation, differentiation, integration, solution of ordinary differential equations and solution of partial differential equations are included. The laboratory includes the application to elementary problems and the computer solution of comprehensive engineering problems.  
**Prerequisite:** Engineering 233 and Applied Mathematics 307.

**Engineering 481**  
H(3-1.55)  
*Technology and Society*  
An interpretive course on the interrelationship between technology and society. The first part of the course surveys significant historical developments within disciplinary areas such as energy, materials, production processes, structures, transport, communications, and computation. Sequence within each area: discovery, development, application, impact, future. Social and economic consequences are also considered. The latter part of the course explores contemporary problems of society and technology.  
**Note:** Available to students registered in other faculties as well as third-year or fourth-year Engineering students. This course does not presuppose any formal background in Engineering or Science.

**Engineering 513**  
H(3-0)  
*The Role and Responsibilities of the Professional Engineer in Society*  

**Graduate Courses**

**Engineering 683**  
H(3-0)  
*Special Problems in Environmental Engineering*  
Designed to provide graduate students with the opportunity of pursuing advanced studies in Engineering for the Environment under the direction of one or more faculty members. Students will be required to consider problems of an advanced nature.

**Engineering 685**  
H(0-5)  
*Research Project in Environmental Engineering*  
Designed to provide individual students or small groups of students, possibly with different backgrounds, with the opportunity to work on a research project under the supervision of one or more faculty members. Industrial representatives may assist in the selection of suitable research projects and actively participate as advisors. A written proposal, one or more progress reports, and a final report are required. Open only to students in the MEng (Courses Only) route.

**English**

**ENGL 202**  
F(3-1T)  
*Reading and Writing about Literature*  
Selected works of poetry, fiction and drama (other genres may be included), with instruction in critical writing.  
**Note:** Students with credit in any 200-level English course may not register in English 202.

**English 213**  
H(3-1T)  
*Introduction to Fiction*  
Selected novels and short stories, with instruction in critical writing.  
**Note:** Open to students with credit in no more than one half-course equivalent of 200-level English.

**English 233**  
H(3-1T)  
*Introduction to Non-Fictional Prose*  
Selected works of non-fictional prose, with instruction in critical writing.  
**Note:** Open to students with credit in no more than one half-course equivalent of 200-level English.

**English 235**  
H(3-1T)  
*Introduction to Poetry*  
Selected poetry, with instruction in critical writing.  
**Note:** Open to students with credit in no more than one half-course equivalent of 200-level English.

**English 237**  
H(3-1T)  
*Introduction to Dramatic Literature*  
Selected plays, with instruction in critical writing.  
**Note:** Open to students with credit in no more than one half-course equivalent of 200-level English.

**English 239**  
H(3-1T)  
*Introduction to Literary Studies*  
Emphasizes fundamental skills: how to read a text accurately and critically; how to write logically, clearly, and correctly; how to listen and speak in a formal discussion.  
**Note:** Open to students with credit in no more than one half-course equivalent of 200-level English.

**English 240**  
F(3-1T)  
(formerly English 200)  
*Literature in English from the Middle Ages to the Present*  
A historical survey, with instruction in critical writing.  
**Note:** Open to students with credit in no more than one full-course equivalent of English at the 200 level. Compulsory for English Majors, Minors and Honours students.

**Senior Courses**

**English 302**  
F(3-0)  
*Introduction to Contemporary Theoretical Practices*  
An examination of the claims and assumptions of a range of contemporary critical practices, such as formalism, structuralism, deconstruction, feminism and gender studies, new historicism, psychoanalytic criticism, and cultural and ideological critique. Includes practice in the application of theory to literary texts.  
**Prerequisite:** One full-course equivalent of English and/or Comparative Literature, or consent of the Department.  
**Note:** Not open to students with credit in English 301.  
**Note:** Compulsory for English Majors, Minors and Honours students.
Courses of Instruction

English 312 F(3-0)
Shakespeare
A consideration of the development and variety of Shakespeare’s dramatic art.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 318 F(3-0)
Women’s Literary Tradition
The writings of women in English from the medieval period to the present, with emphasis on the evolution of a complex and varied literary tradition.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 329 H(3-0)
Reading Poetry
Practice in the close reading of poems. The poetry chosen will emphasize the nineteenth and twentieth centuries.
Note: Not open to students with credit in English 354. Does not require any prerequisite.

English 354 F(3-0)
Poetry: Reading and Analysis
Through textual analysis and close reading, this course acquaints students with the characteristic forms, styles, and concepts of poetry written in English. Detailed attention will be paid to tropes and figures, form, tone, diction, implication, point of view. Students will learn how to work with techniques of prosody and basic poetic terminology in writing analytic essays on poems drawn from a wide range of historical periods, social contexts, and national literatures.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.
Note: Compulsory for English Majors, Minors and Honours students.

English 356 F(3-0)
Drama
A survey of dramatic literature in English from its medieval origins to the present.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 358 F(3-0)
Fiction
The development of prose fictional forms, including the novel and the short story, from the eighteenth century to the present.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 364 F(1-2S-1T)
Poetry Writing I
Basic instruction in writing poetry, with particular emphasis on the short lyric poem.
Prerequisites: Full junior English or equivalent and consent of the Department.
Note: One month before the start of classes, prospective students must submit a portfolio of their own work for evaluation before consent of the Department will be given. Details of this procedure are available from the Department of English. (This course is ideal preparation for English 494.)

English 366 F(1-2S-1T)
Fiction Writing I
Basic instruction in the art of fiction writing, with particular emphasis on the short story.
Prerequisites: Full junior English or equivalent and consent of the Department.
Note: One month before the start of classes, prospective students must submit a portfolio of their own work for evaluation before consent of the Department will be given. Details of this procedure are available from the Department of English. (This course is ideal preparation for English 496.)

English 370 F(3-0)
Canadian Literature
A survey of Canadian literature in English from the beginnings to the present. Includes a range of literary forms and genres and will reflect Canada’s literary history as well as its cultural and regional diversity.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.
Note: Not open to students with credit in English 470.
Note: For courses in French-Canadian Literature refer to the Department of French, Italian and Germanic origins and a consideration of Modern English grammar and orthography from a historical perspective.
Prerequisites: Linguistics 201/203 or 205/207.

English 381 H(3-0)
(Linguistics 381)
The History of English
An introduction to important changes and stages in the history of English including its Indo-European and Germanic origins and a consideration of Modern English grammar and orthography from a historical perspective.
Prerequisites: Linguistics 201/203 or 205/207.

English 383 H(3-0)
Topic in Literature and the Environment
Note: English 383 does not require any prerequisite.
Note: Not open to students with credit in English 387.03 or 387.30.
MAY BE REPEATED FOR CREDIT

English 385 H(3-0)
Topic in Aboriginal Literatures
Note: English 385 does not require any prerequisite.
MAY BE REPEATED FOR CREDIT

English 387 H(3-0)
Topic in Literature and Society
Note: English 387 does not require any prerequisite.
MAY BE REPEATED FOR CREDIT

English 389 H(3-0)
Topic in Gay or Lesbian Literature
Note: English 389 does not require any prerequisite.
MAY BE REPEATED FOR CREDIT

English 392 F(3-0)
International English Literature
Literatures written in English outside of Canada, Great Britain, and the United States, encompassing representative works from several areas such as Africa, Australasia, the Caribbean, and the Indian subcontinent.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.
Note: Not open to students with credit in English 492.

English 393 H(3-0)
Speculative Fiction I: Science Fiction
An examination of works of science fiction.
Note: English 393 does not require any prerequisite.

English 395 H(3-0)
Speculative Fiction II: Fantasy
An examination of works of fantasy.
Note: English 395 does not require any prerequisite.

English 396 H(3-0)
Literature for Younger Children
A historical and critical study of literature for younger children.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 398 F(3-0)
Children’s Literature
A historical and critical study of children’s literature.
Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 399 H(3-0)
Detective Fiction
An examination of detective fiction.
Note: English 399 does not require any prerequisite.

English 401 H(3-0)
Old English Language and Prose Literature
Study of the language of the Anglo-Saxons through reading of prose texts.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 403 H(3-0)
Old English Poetry
Reading and analysis of Old English poetry in the original language.
Prerequisite: English 401 or consent of the Department.

English 404 F(3-0)
Middle English Literature
Representative works of the Middle English period; the Middle English language.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.
Courses of Instruction

English 408 F(3-0)
Sixteenth-Century Literature
Survey of the literature of the Renaissance to 1600.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 414 F(3-0)
Seventeenth Century Literature
Survey of the literature of the Renaissance from 1600, including Milton.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 430 F(3-0)
Restoration and Eighteenth Century Literature
Survey of literature from 1660 to 1800.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 440 F(3-0)
Literature of the Romantic Period
Survey of literature of the Romantic period.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 446 F(3-0)
American Literature to 1900
Survey of American literature to 1900, with emphasis on the nineteenth century.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 450 F(3-0)
British Literature from 1900
Survey of British literature from 1900 to the present.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 462 F(3-0)
American Literature from 1900
Survey of American literature from 1900 to the present.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 470 F(3-0)
Canadian Literature
Survey of Canadian literature from the beginnings to the present.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.
Note: Not open to students with credit in English 370.

English 480 F(3-0)
Literary Theory
Survey of the major theories of and approaches to literature from classical times to the present.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.

English 492 F(3-0)
International Literature
Literatures written in English outside of Great Britain, the United States, and Canada, with works from several areas such as Africa, Australasia, the Caribbean, and the Indian subcontinent.
Prerequisites: English 354 and one of 301 or 302, or consent of the Department.
Note: Not open to students with credit in English 392.

English 494 F(2-1T-1)
Poetry Writing II
A close examination and discussion of the student’s own work, with emphasis on technique.
Prerequisites: Full junior English or equivalent and consent of the Department.
Note: One month before the start of classes, prospective students must submit a portfolio of their own work for evaluation before consent of the Department will be given. Details of this procedure are available from the Department of English.

English 496 F(2-1T-1)
Fiction Writing II
A close examination and discussion of the student’s own work, with emphasis on technique.
Prerequisites: Full junior English or equivalent and consent of the Department.
Note: One month before the start of classes, prospective students must submit a portfolio of their own work for evaluation before consent of the Department will be given. Details of this procedure are available from the Department of English.

English 501 H(3-0)
Studies in Drama
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 503 H(3-0)
Studies in Fiction or Non-Fictional Prose
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 504 F(2S-2T)
Honours Project
Note: Normally restricted to English Honours students. Students must consult with the English Department for information and advice by March of the year in which they plan to register in English 504.

English 505 H(3-0)
Studies in Poetry
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 507 H(3-0)
Studies in British Literature
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 509 H(3-0)
Studies in Canadian Literature
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 510 F(3-0)
Advanced Textual Studies
Prerequisites: One full-course equivalent in English at the 400 level and consent of the Department.
MAY BE REPEATED FOR CREDIT

English 511 H(3-0)
Studies in American Literature
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 513 H(3-0)
Studies in International Literatures in English
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 517 H(3-0)
Theoretical and Cultural Studies
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 519 H(3-0)
Studies in a Literary Period
Prerequisite: One full-course equivalent in English at the 400 level, or consent of the Department.
MAY BE REPEATED FOR CREDIT

English 598 F(2-1T-1)
The Book-Length Manuscript
A close examination and discussion of the student’s own work, with emphasis on advanced technique.
Prerequisites: English 364, 366, 494, and/or 496 or equivalent and consent of the Department.
Note: This course is double-numbered with English 698 (which will have separate and more strenuous student expectations). A student may take English 598 as an undergraduate student and 698 as a graduate student in English.
Note: One month before the start of classes, prospective students must submit a portfolio of their own work for evaluation before consent of the Department will be given. Details of this procedure are available from the Department of English.
MAY BE REPEATED FOR CREDIT

English 603 H(3-0)
Studies in Genre
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<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
<th>Notes</th>
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<td>English 605</td>
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<td>H(3-0)</td>
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<td>English 607</td>
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<td>English 609</td>
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<td>English 612</td>
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<td>English 620</td>
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<td>Studies in Romantic Literature</td>
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<td>English 622</td>
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<td>Studies in Nineteenth-Century Literature</td>
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<td>Studies in Nineteenth-Century Literature</td>
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<td>English 624</td>
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<td>Studies in Modern Literature</td>
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<tr>
<td>Studies in Modern Literature</td>
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<td>English 680</td>
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<td>F(3-0)</td>
<td>Studies in Literary Criticism</td>
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<td>English 684</td>
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<td>F(3-0)</td>
<td>Special Topics</td>
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<td>Special Topics</td>
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<td>MAY BE REPEATED FOR CREDIT</td>
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<tr>
<td>English 696</td>
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<td>F(1-0)</td>
<td>Studies in Bibliography, Research Methods, and Palaeography</td>
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<td>Required of all graduate students who have not had an equivalent course</td>
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<tr>
<td>English 698</td>
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<td>F(2-1-T1)</td>
<td>Studies in Creative Writing</td>
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<td>Note: This course is double-numbered with English 598 (which will have separate and less-strenuous student expectations). Though 598 and 698 may not both be counted for graduate credit, a student may take 598 as an undergraduate student and 698 as a graduate student in English.</td>
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<td>Prerequisite: Evidence of high Intermediate to low Advanced English language proficiency.</td>
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<td>Corequisites: English Language Foundation Program 163, 167.</td>
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<td>Note: Not available for credit towards a degree/diploma program.</td>
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<tr>
<td>English Language Foundation Program 163 H(5-1.5)</td>
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<tr>
<td>Reading English</td>
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<tr>
<td>English Language Foundation Program 167 H(5-1.5)</td>
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<td>Writing English</td>
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<td>English Language Foundation Program 170 F(10-3)</td>
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<td>Level 2 Courses</td>
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<td>English Language Foundation Program 173 H(5-1.5)</td>
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<td>Listening/Speaking English 1</td>
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<td>English Language Foundation Program 179 H(5-1.5)</td>
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<td>English Language Foundation Program 185 H(5-1.5)</td>
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<tr>
<td>English Language Foundation Program 197 H(5-1.5)</td>
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Courses of Instruction

Entrepreneurship and Innovation Corequisites:

Entrepreneurship and Innovation 201 or 381 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 403 H(3-0)

New Venture Planning

A project based course in developing and writing a business plan for an existing and/or growth oriented venture. Focus will be given to the content, form and uses of a formal business plan.

Prerequisites: Third year standing and Entrepreneurship and Innovation 201 or 381 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 405 H(3-0)

New Venture Start-Up

Application of the strategies and tactics for the creation and growth of potential new ventures. Students will address key questions in bringing together critical resources to launch a venture, review important empirical research in the field and participate in project work.

Prerequisites: Third year standing and Entrepreneurship and Innovation 201 or 381 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 499 H(3-0)

Family Business Management

Explores the functions, issues, operations, and dynamics of family businesses. Topics include, but are not limited to the strengths and weaknesses of family businesses, managing family business conflict, management succession, professionalization, and strategic planning. The pedagogy of the course relies on field projects, discussions of readings and cases, and guest speakers.

Prerequisite: Third year standing.

Note: Credit for both Entrepreneurship and Innovation 499 and Strategy and Global Management 559.09 will not be allowed.

Entrepreneurship and Innovation 559 H(3-0)

Selected Topics in Entrepreneurship and Innovation

Investigation of selected topics related to entrepreneurship, venture development and family business, emphasizing the practical application of theory and principles to actual business situations and venture opportunities.

Prerequisite: Third year standing.

MAY BE REPEATED FOR CREDIT

Graduate Courses

Entrepreneurship and Innovation 781 H(3-0)

Introduction to Entrepreneurship

An experience based course covering the prestart-up stage of business development through group projects and case studies designed to provide experience based skill development in creativity, idea generation, and feasibility analysis.

Entrepreneurship and Innovation 783 H(3-1)

Opportunity Development

A project and case based course designed to explore concepts of opportunity development.

Entrepreneurship and Innovation 785 H(3-0)

Venture Development

A project based course designed around the formation of business concepts in the formalization of a business plan.

Note: Credit for both Entrepreneurship and Innovation 785 and Management Studies 797.81 will not be allowed.

Entrepreneurship and Innovation 787 H(3-0)

Applied Business Analysis

Approaches to advising new and existing ventures on effective venture development. Projects will involve the student conducting analysis of several ventures and providing advice to them.

Prerequisite: Marketing 601 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 797 H(3S-0)

Advanced Seminar in Venture Development

797.01. Technology Commercialization

797.02. Strategic Legal Planning for New Ventures

Prerequisite: Consent of the Haskayne School of Business.
Courses of Instruction

Entrepreneurship and Innovation 799 H(3S-0)

Doctoral Seminars in Venture Development

799.01. Entrepreneurship: The State of the Art
799.02. Conceptual Models and Theories of New Venture Development
799.03. Special Topics in Entrepreneurship and Innovation
799.04. Advanced Topics in Entrepreneurship

Environmental Design EVDS

The following list of courses, offered by members of the Faculty of Environmental Design and members of other departments in the University, is specific to the 2003-2004 academic year.

Students are advised that some of the courses listed below may not be offered in 2003-2004 if special circumstances require that they be dropped.

Students should consult with their Faculty advisor before registering for any course.

Core Courses in Environmental Design are:

Environmental Design 604. Conceptual Bases of Environmental Design

Environmental Design 609. Environmental Design Practice

Environmental Design 701. Advanced Environmental Design Practice

Environmental Design 702. Advanced Environmental Design Practice

Environmental Design 711. Theoretical Basis for Interdisciplinary Intervention and Design.

Senior Courses

Environmental Design 533 H(3-0)

Introduction to Industrial Design

Historic and conceptual frameworks of industrial design; principles of ergonomics, materials and industrial production technologies; industrial design as technique and creative process; professional perspectives. Lectures and field work. Environmental Design 533 is a prerequisite or corequisite to Industrial Design studio courses.

Environmental Design 583 H(1.5-1.5T)

Special Topics in Environmental Design

Topics in architecture, environmental science, industrial design and planning.

MAY BE REPEATED FOR CREDIT

Environmental Design 597 Q(1.5-1.5T)

Special Topics in Environmental Design

Topics in architecture, environmental science, industrial design and planning.

MAY BE REPEATED FOR CREDIT

Graduate Courses

Environmental Design 604 F(4.5-0)

Conceptual Bases of Environmental Design

Conceptual frameworks for design intervention in the environment based on perspectives from the humanities, natural and social sciences of human relation to natural, social and built environments; theories and models of investigation and intervention; discussion of professional responsibilities and environmental design issues. Required course for all Environmental Design degree program students. Design Camp, for first year students, is part of the Environmental Design 604 core course.

Environmental Design 606 F(6-1)

Introduction to Environmental Science

Study of the nature, philosophy and research of environmental science professional practice. Examines project definition, research design scoping, business management, and regulatory and policy issues in environmental science. There is an interdisciplinary problem solving studio component. Research design and proposal writing are developed.

Note: Not open to students with credit in Environmental Design 603 or 683.13.

Note: Normally open only to students in Environmental Design degree programs and required of all MEDES and MArch Environmental Science students.

Note: Full course offered in single session.

Environmental Design 609 H(0-0)

Environmental Design Practice

Introduction to environmental design encompassing perspectives of architecture, industrial design, urban and regional planning and environmental science; communication and interdisciplinary approaches; environmental design as technique and creative process. Lectures, field and studio work.

Note: Open only to students in Environmental Design degree programs and required of all MEDES and MArch degree program students.

Note: Graded on CR/C/F basis only.

Environmental Design 615 Q(1-3)

(formerly Environmental Design Planning 615)

Introduction to Computer Visualization in Urban Design

Introduction to computer visualization techniques with emphasis on CAD studio project.

Environmental Design 617 H(3-0)

Statistical and Empirical Methods in Industrial Design

A broad interdisciplinary view of methods used to collect and interpret information necessary in the design and development of products. Areas dealt with include but are not limited to user needs and preferences, manufacturing processes and market investigations.

Environmental Design 621 H(3-1)

Health in the Built Environment

Concepts of health in an environmental context; historic approaches to preventative medicine; medical basis of building-related illness; case studies in indoor air quality; strategies for prescription and design of healthy indoor environments.

Environmental Design 623 H(3-0)

Sustainability in the Built Environment

The principle of sustainability recognizes people as temporary stewards of their environments, working toward a respect for natural systems and a higher quality of life. Examination of the built environment and the tools to achieve a stable and balanced and a regenerative ecosystem in a process of responsible consumption, wherein waste is minimized and the built environment interacts with natural environments and cycles. Healthful interior environments, resource efficiency, ecologically benign materials, renewable energies and social justice issues are examined.

Environmental Design 625 H(3-0)

(formerly Environmental Design 683.16)

Environmental Design of Wetlands and Inundated Areas

Wetland ecology, hydrology and biogeochemical processes will be applied to management issues and design opportunities afforded by wetlands and inundated landscapes. Relationships between land use and water quality lead to consideration of the effects of point source and non-point source pollutants on natural wetlands and receiving water bodies. The effectiveness and limitations of water treatment applications of designed wetlands. Local constructed wetland projects will be used to demonstrate design concepts, regulatory issues and site-specific opportunities. Lectures, student-led seminars and interactive class design study are included.

Note: Offered in odd-even dated academic years.

Environmental Design 627 Q(1.5-1.5)

Computer Literacy in Environmental Design

Basic computer literacy for Environmental Design students. Introduction to selected software packages of professional relevance to environmental designers.

Note: Graded on CR/C/F basis only.

Environmental Design 629 H(3-0)

(formerly Environmental Design 721)

Community Development

Basic principles and practice of community development. A comprehensive approach to the field and discussion of a wide range of community development perspectives. Topics include community economic development, housing, tourism and cultural development.

Environmental Design 633 H(3S-0)

Environmental Reserves

Study of National Parks and equivalent reserves throughout the world, with emphasis on those occurring in North America; an examination of the purposes and functions of such areas in historical, cultural, ecological, legal, and future perspectives; analysis of selected planning and use situations and their related institutional structures.

Note: Offered in even-odd dated academic years.

Environmental Design 635 H(3-1.5)

Computer Applications for Industrial Design

Introduction to computer applications in Industrial Design, including computer-aided design (CAD), computer graphics, analytical and micro-computer applications. Conceptual and mathematical bases for two- and three-dimensional computer modelling. Hands-on experience with a range of CAD systems and other computer applications. Discussion of the role of computer systems in design processes.

Prerequisite: Mathematics 30 or equivalent.

Environmental Design 639 H(3-1)

(formerly Environmental Design 683.88)

Planning Theory

An introduction to planning theory. Develops a critical awareness of key historical, theoretical, and ethical frameworks: legal, political, and economic institutions; and an understanding of their implications for Canadian planning. An integrative normative procedural approach to planning is presented, one which is appropriate for a pluralistic liberal democratic society.
Environmental Design 641 H(3-3)
Applications of Plant Ecology to Environmental Management
Fundamental ecological concepts and their applications in Range Management and Forest Management. Range Management section covers such areas as range inventory, classification, assessment, balancing range resource with herd size, productivity and dynamics and various manipulative techniques to improve range productivity. Forest Management section deals with forest use, sustained yield concept, forest and site classification, productivity, silviculture, crop rotations, forest planning, conservation and multiple use in forested areas. Weekend field trips to: central Alberta, central British Columbia and the Alberta foothills.

Environmental Design 645 H(0-8)
Site Planning and Design
Site analysis, landscape potentials and constraints, development factors and criteria are discussed and applied to a human settlement project. Small and large scale projects are compared. Primarily studio project work, with lectures on methods and illustrative examples.
Prerequisite: Environmental Design Planning 615 and 633 or equivalent.

Environmental Design 647 H(3-0)
Historic Preservation: Principles and Practice
Introduction to the concepts, approaches and practice of historic preservation from both an urban planning as well as an architectural perspective. Building conservation, historic districts, historic site development, ecomuseums, commercial area and neighbourhood revitalization are analysed for both public as well as private sector concerns. North American and European case studies are utilized.
Note: Offered in odd-even dated academic years.

Environmental Design 649 H(3-0)
Impact Assessment
Biophysical, economic and social impact assessment will be reviewed in an integrated, interdisciplinary approach which will include lectures, studies of methodologies, theory and practical problems. Federal and various Provincial impact assessment policies and procedures will be considered.

Environmental Design 652 F(0-16)
Basic Industrial Design Studio
Basic skills in form-giving for mass produced objects. Principles of two- and three-dimensional composition, space and form; the design process. The application of basic design principles to simple problems in industrial design.
Prerequisite or Corequisite: Environmental Design 533.
Note: Full course offered in single session only.
Note: Open to students in Environmental Design programs and available to students from other faculties with program permission.

Environmental Design 653 H(3-0)
Multimedia for Environmental Design
Laboratory course allowing students the opportunity to develop an understanding of computer multimedia techniques used to create interactive presentations, educational CD-ROM titles and web documents. The elements covered by the course are: visual (still, video and animation techniques), sound (quality and integration), and the use of web design software.

Note: Not open to students with credit in Environmental Design 683.56 or 697.35.

Environmental Design 657 H(3-0)
Landscape Reclamation
Introduction to reclamation planning and practice covering such topics as reclamation goal setting, impact prediction, mitigation, materials handling, landscape reconstruction, revegetation, erosion control and industrial decommisioning. The course will focus on large scale developments such as strip mining, industrial plants and linear disturbances. The course is comprised of lectures, a project and student seminars.

Environmental Design 659 H(96 hours)
The Ecology of the Canadian West Coast - A Field Course
A two-week field course conducted in late Spring to acquaint students with the ecosystems of the Canadian West Coast from the marine intertidal zone through mesothermal forest ecosystems to alpine tundra ecosystems. The use of plant ecology to help delineate functional, manageable ecosystem units is emphasized using the taxonomy, autoecology and synecology of some 450 plant species. Selected land use and management problems are observed and discussed. A minimum enrollment for the course is required.
Note: Offered in even-odd dated academic years.

Environmental Design 661 H(3-0)
(formerly Environmental Design 683.18)
Ecosystem Management and Planning
Natural resource managers and planners are realizing (and operationalizing) the need for concordance between the dynamic process-and-pattern view of nature and the complex social milieu that forms the context for resource planning and management. The emerging field of ecosystem management is the embodiment of the professional response to this need. Examines the interdisciplinary approach of ecosystem management as the intersection between conservation biology, social science of natural resource management and organizational theory. Case studies and readings will be chosen to highlight current ecosystem management ideas and practice.

Environmental Design 663 H(3-0)
Introduction to Policy Analysis
Introduces students to the major issues and policy responses to economic, social and environmental problems in Canadian communities. Provides an overall understanding of the political, societal, financial and institutional constraints that affect the processes of policy formation and implementation. Assists in the development of practical skills in the analysis, planning, monitoring and evaluation of public policies.

Environmental Design 665 H(3-0)
Drawing Skills and Studio Techniques for Designers
Introductory manual drawing studio for students of industrial design directed to developing skill in conceiving, developing and communicating ideas through various drawing styles, techniques and media.

Environmental Design 667 H(3-0)
Geographic Information Systems for Environmental Design
Introduction to the use of GIS in urban planning and environmental management. Discussions on GIS modeling focus on population projection, location theory, land use modeling and environmental and ecological management. Case studies from both the public and private sector provide the basis for assignments. Emphasis given to developing a sensitivity to the application appropriate for specific GIS problems.

Environmental Design 671 H(3-0)
(formerly Environmental Design 683.35)
Urban Design Theory
Intended to provide students with an introduction to theories, concepts, methods and contemporary issues in urban design. The course consists of lectures, case studies, seminars and a short project.

Environmental Design 673 H(3-0)
(formerly Environmental Design 683.42)
Wildlife Management Planning
Reviews the history of wildlife management and the principles of effective planning, including scoping issues, dealing with constraints, goal setting, effective public involvement, conflict resolution, development and evaluation of alternatives, and applying science to evaluate management actions. The course begins with a series of introductory lectures on the fundamentals of wildlife management, history of wildlife management and policy, the need for science in management, and the changing context of public involvement in resource management. Lectures by professional practitioners provide insights into the practical world of resource management and planning. Assignments allow students to assess a wildlife issue, critically review selected wildlife management plans, and to write and present a strategic management plan.

Environmental Design 679 H(3-0)
Computer Modeling of the Environment
Introduces the use of computer modeling, animation and virtual reality in architecture and urban design. Professional CAD and rendering applications will be used to explore the aesthetic and technical aspects of design. Emphasis given to developing a sensitivity to the application appropriate to communicating three dimensional urban and natural form using computer generated images.

Environmental Ethics Seminar
Intended to provide the student with a thorough grounding in the theory and practice of environmental ethics. Particularly directed to students in Environmental Design and concerns itself primarily with philosophical and ethical issues facing environmental scientists, planners and designers. Includes such topics as animal rights, deep ecology, eco-feminism, environmental pragmatism and sustainable development.

Environmental Design 683 H(1.5-1.5T)
Advanced Special Topics in Environmental Design
Topics in architecture, environmental science, industrial design and planning.

MAY BE REPEATED FOR CREDIT
## Courses of Instruction

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Design 685</td>
<td>Industrial Design Clinic</td>
<td>H(3-0)</td>
<td>Offered in odd-even dated years</td>
<td></td>
</tr>
<tr>
<td>Environmental Design 687</td>
<td>Ergonomics for Environmental Design</td>
<td>H(3-0)</td>
<td>Offered in odd-even dated years</td>
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</tr>
<tr>
<td>Environmental Design 689</td>
<td>Industrial Design Technology</td>
<td>H(3-0)</td>
<td></td>
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<tr>
<td>Environmental Design 691</td>
<td>History of Industrial Design</td>
<td>H(3-0)</td>
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<tr>
<td>Environmental Design 693</td>
<td>People and Products</td>
<td>H(3-0)</td>
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<tr>
<td>Environmental Design 697</td>
<td>Advanced Special Topics in Environmental Design</td>
<td>Q(1.5-1.5T)</td>
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<tr>
<td>Environmental Design 702</td>
<td>Advanced Environmental Design Practice</td>
<td>F(0-16)</td>
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<tr>
<td>Environmental Design 703</td>
<td>Directed Study in Environmental Design</td>
<td>Q(0-3)</td>
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<tr>
<td>Environmental Design 707</td>
<td>Ecological Management in Land Use Planning</td>
<td>H(0-8)</td>
<td></td>
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<tr>
<td>Environmental Design 709</td>
<td>Product and Technology Assessment</td>
<td>H(3-0)</td>
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<tr>
<td>Environmental Design 711</td>
<td>Theoretical Basis for Interdisciplinary Intervention and Design</td>
<td>H(0-8)</td>
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<tr>
<td>Environmental Design 713</td>
<td>Research and Analytic Methods for Planning</td>
<td>H(3-1)</td>
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<tr>
<td>Environmental Design 723</td>
<td>International Development Planning: Theory and Practice</td>
<td>H(3-0)</td>
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<tr>
<td>Environmental Design 725</td>
<td>Topics in Wildlife Management and Resource Development</td>
<td>H(3-0)</td>
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<tr>
<td>Environmental Design 731</td>
<td>Cultural Tourism</td>
<td>H(3-0)</td>
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<tr>
<td>Environmental Design 743</td>
<td>Studio in Urban Design</td>
<td>H(0-8)</td>
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<tr>
<td>Environmental Design 747</td>
<td>Management in Environmental Science</td>
<td>H(36 hours in Fall or Winter Session)</td>
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<tr>
<td>Environmental Design 749</td>
<td>Water Management</td>
<td>H(3-1)</td>
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</tbody>
</table>

### Environmental Design

- **Environmental Design 685 Industrial Design Clinic**
  - The evaluation of new products and services with emphasis on the Industrial Design content. The goal of the evaluation exercise is to provide the client with advice.
  - **Note:** Offered in odd-even dated academic years.

- **Environmental Design 687 Ergonomics for Environmental Design**
  - Consideration of human physical, physiological, perceptual, and behavioural characteristics in the design of an object or environment for safe and effective use. Methods of obtaining human factors information, applying this information in a design process, and evaluating designs against human factors constraints and user performance criteria. Sources of information and factors affecting the validity of information. The scope of human factors, ergonomics, anthropology, and related disciplines. Independent research in applications of individual interest.
  - **Note:** Offered in odd-even dated academic years.

- **Environmental Design 689 Industrial Design Technology**
  - Application of contemporary and developing technologies to industrial design. Content covers manufacturing processes and materials, with particular emphasis on metals and plastics. The course includes lectures, design exercises, seminar discussions, case studies and field trips.
  - **Note:** Offered in even-odd dated academic years.

- **Environmental Design 691 History of Industrial Design**
  - Review of the social, cultural and technical environment of Industrial Design; major personalities, design movements and achievements in the design of products since 1900; current and emerging trends.
  - **Note:** Offered in odd-even dated academic years.

- **Environmental Design 693 People and Products**
  - Seminar course exploring the interactions between people and products on their many levels and in their multifaceted complexity. Product perception, attitudes, meaning, semiotics, and psycho-social processes. Awareness of frameworks and concepts for understanding the interaction between people and products from industrial design, psychology, sociology, anthropology, ethnology, and other disciplines. Key frameworks, concepts, and methods to the design process.
  - **Note:** Offered in even-odd dated academic years.

- **Environmental Design 697 Advanced Special Topics in Environmental Design**
  - Topics in architecture, environmental science, industrial design and planning.
  - **MAY BE REPEATED FOR CREDIT**

- **Environmental Design 702 Advanced Environmental Design Practice**
  - Interdisciplinary training in environmental design practice at an advanced level, centred on case studies, information probing and analysis, design, management assignment and an environmental design presentation on a real world problem.
  - **Prerequisite:** Environmental Design 609 or 711 or permission of instructor.
  - **Note:** Credit for both Environmental Design 701 and 702 will not be allowed.
  - **Note:** Offered in single session.
  - **Note:** Graded on CR/C/F basis only.

- **Environmental Design 703 Directed Study in Environmental Design**
  - Research, readings or a studio project in architecture, environmental science, industrial design or planning.
  - **Note:** Open only to Environmental Design students with consent of the Associate Dean (Academic).
  - **MAY BE REPEATED FOR CREDIT**

- **Environmental Design 707 Ecological Management in Land Use Planning**
  - A studio course in which a real land use problem with a major ecological management component is taken on by the class as a consulting team. Problem definition, proposal preparation and the complete study from regional biophysical and land use inventory through client presentations of interim and final results are completed within the term. The final report must include development recommendations and environmental management guidelines. Projects are drawn mainly from the resource development industry, although other potential clients are considered.

- **Environmental Design 709 Product and Technology Assessment**
  - Theoretical, legal, and practical aspects of assessing products and technologies for their environmental impacts (socio-economic, health, safety, and biophysical). Philosophy and theory of PATA, life cycle assessment, life cycle costing, risk assessment and management, green product endorsement and labelling, and purchasing guidelines are explored through lectures, seminar, and projects.

- **Environmental Design 711 Theoretical Basis for Interdisciplinary Intervention and Design**
  - Comparisons and contrasts among disciplinary, multidisciplinary and interdisciplinary intervention and research. Focus on interdisciplinary teamwork knowledge and skills, on the ability to integrate research into professional real world contexts and on the ability to communicate research results effectively. This course is open only to students registered in a PhD program and is a prerequisite to Environmental Design 702.

- **Environmental Design 713 Research and Analytic Methods for Planning**
  - Advanced planning techniques and methods for managing, analyzing, interpreting, and presenting data and information, with an emphasis on computer applications.
  - **Note:** Open only to students in Environmental Design degree programs.
  - **Note:** Assumes a working knowledge of statistics.

- **Environmental Design 723 International Development Planning: Theory and Practice**
  - Examines strategies for urban development within the context of a globalized economy. Competition for investment, global interdependence, technological change, growing income polarization, and environmental degradation are creating new challenges in the urbanizing world. Planning concepts and policies will be examined in different economic, institutional and cultural settings with an emphasis on economic, social and physical aspects of change. Selected best practices in North America, Western and Eastern Europe will illustrate different approaches to development and sustainability.

- **Environmental Design 725 Topics in Wildlife Management and Resource Development**
  - The practice of wildlife management combines the science of ecology with an understanding of human social and economic needs. It acknowledges that the root of environmental problems lies in the economy and human culture. Through a series of assigned readings, seminars and discussions, the course will examine current applications of wildlife management practice, conservation biology, wildlife population management, community-based wildlife management, and environmental impact assessment.

- **Environmental Design 731 Cultural Tourism**
  - Designed to provide students with an introduction to the wide range of existing cultural tourism possibilities, while emphasizing the management design and planning dimensions of historic resources (historic sites, buildings, festivals, events and regional heritage initiatives). Case study approach whenever appropriate.

- **Environmental Design 743 Studio in Urban Design**
  - These urban design studies explore contemporary problems in urban development and design, and emphasize a concern for place over an extended period of time, human behaviour - built form relationships and environment conservation goals. The approach aims to produce urban design that is locale-specific and yet responsive to changes in the ways we live.
  - **MAY BE REPEATED FOR CREDIT**

- **Environmental Design 747 Management in Environmental Science**
  - Introduces students to Environmental Management Systems and a set of 22 environmental management tools, which can be used by corporations and institutions to reduce their adverse impacts on the environment and to conserve resources. Lectures and seminars will review current practice, theory and provide specific examples. Ways and means of controlling activities of institutions and corporations that affect the environment, rather than on managing the environment.

- **Environmental Design 749 Water Management**
  - A broad perspective on water management issues through lectures, seminars, case studies and extensive readings. Water quality, quantity, technology, aesthetics, recreation and in stream uses, biophysical and cultural characteristics of watersheds, watershed rehabilitation and restoration, with an emphasis on Canada and Western Canada in particular. A review of legislation and policy at municipal, provincial, federal and international levels.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>792</td>
<td>Advanced Studio in Environmental Design</td>
<td>F(0-16)</td>
</tr>
<tr>
<td>783</td>
<td>Directed Study in Environmental Design</td>
<td>H(0-3)</td>
</tr>
<tr>
<td>791</td>
<td>Studio in Industrial Design</td>
<td>H(0-8)</td>
</tr>
<tr>
<td>792</td>
<td>Workshop in Industrial Design</td>
<td>H(0-8)</td>
</tr>
<tr>
<td>581</td>
<td>Environmental Design Architecture 581</td>
<td>H(0-8)</td>
</tr>
</tbody>
</table>

**Environmental Design Architecture**

**Instruction offered by members of the Faculty of Environmental Design.**

**Senior Courses**

**Environmental Design Architecture 511 H(3-1)**

- **Building Science and Technology I**
  - Functioning of the building enclosure: demonstration of the behaviour of building elements and their sub-assemblies under differential temperature and pressure stresses; fundamentals of acoustics; nature and use of building materials; response of building materials to climatic cycles, transformation, heating and cooling.
  - Note: Credit for both Environmental Design Architecture 511 and Architectural Studies 449 will not be allowed.

**Environmental Design Architecture 519 H(3-0)**

- **Structures for Architects I**
  - An overview of the different structural systems which may be considered for buildings including: an intuitive application of the principles of mechanics; the relationship of form and structural resistance; typical applications in steel, reinforced concrete and composite systems; and long spans, tall buildings and space structure principles.
  - Note: Credit for both Environmental Design Architecture 519 and Architectural Studies 449 will not be allowed.

**Environmental Design Architecture 521 H(3-0)**

- **Introduction to Design Theories**
  - The contemporary cultural, social, and philosophical arenas in which architecture exists are examined through lectures, readings and seminars. The course runs in conjunction with Environmental Design Architecture 581.
  - Note: Credit for both Environmental Design Architecture 521 and Architectural Studies 445 will not be allowed.

**Environmental Design Architecture 523 H(3-0)**

- **History of Architecture and Human Settlements**
  - A survey history of architecture and human settlement from the prehistoric times until the present. The first course addresses the premodern traditions of the major world cultures. The second course explores the traditions of the Western world from the beginning of the Italian Renaissance until the present. The courses will examine the changes in world view that have altered the course of architecture through the study of selected works of architecture and urbanism.
  - Note: Credit for both Environmental Design Architecture 523 and any of Architectural Studies 457, Environmental Design 671 or Environmental Design Architecture 623 will not be allowed.

**Environmental Design Architecture 552 H(3-0)**

- **Architecture of the Western World Since 1900**
  - A survey of the most significant examples of modern architecture, defining their stylistic character in light of developments in technology, the history of ideas, and social and historical factors.
  - Note: Credit for both Environmental Design Architecture 552 and Art History 425 will not be allowed.

**Environmental Design Architecture 541 H(100 hours)**

- **Graphics Workshop I**
  - A skill building course with instruction and supervised experience in basic drafting, sketching and rendering; principles of perspective, drawing and presentation conventions. A variety of instruction may be offered to accommodate the varied level of student development.
  - Note: Credit for both Environmental Design Architecture 541 and Architectural Studies 451 will not be allowed.

**Environmental Design Architecture 543 H(100 hours)**

- **Graphics Workshop II**
  - Instruction and supervised experience in drafting, sketching and rendering; drawing and presentation conventions. Builds on Environmental Design Architecture 541. A variety of instruction may be offered to accommodate the varied level of student development.
  - Note: Credit for both Environmental Design Architecture 543 and Architectural Studies 453 will not be allowed.

**Environmental Design Architecture 561 H(3-0)**

- **Architectural Professional Practice I**
  - An overview of the structure, organization and changing roles of the design professions through history with emphasis on emerging patterns of practice. The procedures, constraints and opportunities of practice in its legal, ethical and technical dimensions will be analysed using a case study method.

**Environmental Design Architecture 581 H(0-5)**

- **Introductory Studio in Architecture**
  - An introduction to architectural design. Through exercises in the manipulation and composition of space and form students will develop the foundation of basic design skills necessary to pursue more advanced architectural design studies.
  - Note: Credit for both Environmental Design Architecture 581 and Architectural Studies 443 will not be allowed.

**Environmental Design Architecture 582 F(0-16)**

- **Studio II in Architecture**
  - An introduction to the application of ordering principles of architecture and to the numerous layers that contribute to the quality of inhabitation of place and space through design. Issues explored include the formal, the experiential and the theoretical concerns of architectural design in today's cultural context.
  - Note: Credit for both Environmental Design Architecture 582 and Architectural Studies 444 will not be allowed.

**Environmental Design Architecture 525 H(3-0)**

- **(formerly Environmental Design 683.15)**

**Environmental Design Architecture 525 H(3-0)**

- **Architecture of the Western World Since 1900**
  - A survey of the most significant examples of modern architecture, defining their stylistic character in light of developments in technology, the history of ideas, and social and historical factors.
  - Note: Credit for both Environmental Design Architecture 525 and Art History 425 will not be allowed.

**Environmental Design Architecture 793 H(0-5)**

- **Preceptorship**
  - A Preceptorship is a study and training arrangement made between a student and an employer or an equivalent supervisor which has specific educational objectives, a method of evaluation, and is an integral part of a student's Program of Studies. Preceptorships offer a number of benefits: acquiring skills and knowledge which may be better obtained outside the University; developing first-hand experience of professional design practice; preparing for more focused studies in the Faculty; and conducting research. An approved preceptorship assignment is equivalent to full-time studies. Preceptorships are not normally approved until a Program of Study is at least conditionally approved.
  - MAY BE REPEATED FOR CREDIT
  - Master's Degree Project. Students in Environmental Design undertaking their Master's Degree Project, will register in PROJ 777/778.

**Environmental Design Architecture EVDA**

- **NOT INCLUDED IN GPA**

**Environmental Design 793 H(0-5)**

- **Workshop in Industrial Design**
  - Instruction and supervised experience in the use of tools and equipment for the development of study models, prototypes and graphic material related to student projects. Field work and term projects.

793.01. Workshop Skills for Architecture

793.02. Workshop Skills for Industrial Design

793.03. Workshop Skills for Environmental Design.

- NOT INCLUDED IN GPA

**Environmental Design 799 H(3-0)**

- **Preceptorship**
  - A Preceptorship is a study and training arrangement made between a student and an employer or an equivalent supervisor which has specific educational objectives, a method of evaluation, and is an integral part of a student's Program of Studies. Preceptorships offer a number of benefits: acquiring skills and knowledge which may be better obtained outside the University; developing first-hand experience of professional design practice; preparing for more focused studies in the Faculty; and conducting research. An approved preceptorship assignment is equivalent to full-time

Note: Full course offered in single session only.
### Courses of Instruction

#### Graduate Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Design Architecture 611</td>
<td>H(3-1)</td>
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</tr>
<tr>
<td><strong>Building Science and Technology II</strong></td>
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<tr>
<td>Theory and principles of structural, foundation and building service systems. Application of building science principles to building structure and enclosure, examination of the types and manufacture of building elements and the application of building components to specific problems in architecture.</td>
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<tr>
<td>Environmental Design Architecture 615</td>
<td>Q(3-0)</td>
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<tr>
<td><strong>Environmental Control Systems</strong></td>
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<tr>
<td>Approaches to the design of heating, cooling, and ventilation systems for buildings. Issues in system design such as energy efficiency and indoor air quality.</td>
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<tr>
<td>Environmental Design Architecture 617</td>
<td>Q(3-0)</td>
<td></td>
</tr>
<tr>
<td><strong>Architectural Lighting Design</strong></td>
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<tr>
<td>Fundamentals of light and visual perception. Approaches to the design of non-uniform and uniform lighting systems for buildings. Issues in system design such as human satisfaction and performance and energy efficiency. Development of skills in the selection and design of lighting systems.</td>
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<tr>
<td>Environmental Design Architecture 619</td>
<td>H(3-0)</td>
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<tr>
<td><strong>Structures for Architects II</strong></td>
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<tr>
<td>Fundamentals of Structural Analysis including the characteristics and performance of the various components of structures; the terminology and notation necessary for effective teamwork with structural engineering consultants; and basic design calculations for simple structures.</td>
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<tr>
<td>Environmental Design Architecture 621</td>
<td>H(3-0)</td>
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<tr>
<td><strong>Formal Strategies in Architecture</strong></td>
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<tr>
<td>The relationship between architectural intention and a syntactic knowledge of architecture. Precedents used as vehicles of investigation to clarify the ways meaning is 'contained' in form. The formal strategies utilized by the architect in the generation of architectural meaning through built form.</td>
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<tr>
<td>Environmental Design Architecture 655</td>
<td>H(3-0)</td>
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<tr>
<td><strong>Computer-Aided Architectural Design</strong></td>
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<tr>
<td>Three- and two-dimensional representation of designs. Issues in computer-aided architectural design such as consequences for conceptualization, experiential qualities of design with machines, new approaches to generation of designs, re-use of information, possibilities of new information technologies, and personal productivity.</td>
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</tr>
<tr>
<td>Environmental Design Architecture 661</td>
<td>H(3-0)</td>
<td></td>
</tr>
<tr>
<td><strong>Management and Cost Control in the Building Industry</strong></td>
<td></td>
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</tr>
<tr>
<td>Organization for building design and construction according to various types of projects; networks and other systems for project control; building economics; cost analysis and estimating techniques; and cost controls during design and construction.</td>
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<tr>
<td>Environmental Design Architecture 663</td>
<td>H(3-0)</td>
<td></td>
</tr>
<tr>
<td><strong>Architectural Professional Practice II</strong></td>
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<tr>
<td>The nature of the building industry, stakeholders and many of the participants and their responsibilities. Brings together the theoretical framework of the architect's role in society with the practicality of managing a practice. Project management and</td>
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</tbody>
</table>

### Environmental Design Planning (EVDP)

**EVDP** Instruction offered by members of the Faculty of Environmental Design.

### Graduate Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Design Planning 619</td>
<td>H(3-1)</td>
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</tr>
<tr>
<td><strong>Ecological-Environmental Planning</strong></td>
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</tr>
<tr>
<td>The concepts of ecology and &quot;designing with nature&quot; in application to human settlement planning. Discussion of key concepts such as biomes, energy and nutrient flows, habitat, trophic gradients, etc., as these can be accounted for, altered, preserved, restored or manipulated in the various episodes of planning and designing for built environments. Conceptualizing the design of environments that enhance or create new urban ecological regimes conducive to sustainability. Examples ranging from general land use plans to housing and design projects.</td>
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</table>

### Environmental Design Planning 634                                      | F(3-0)  |       |

### Professional Planning Practice 1: Skills and Knowledge

The first in an integrated set of core courses for planning students that addresses priority knowledge and skill sets. A comprehensive lecture, workshop and studio course covering history, theory and practice of planning. An introduction to physical planning, and to decision-making frameworks and techniques is incorporated.

Note: The assignments assume a working knowledge of computer applications, including spreadsheets and databases.

### Environmental Design Planning 636                                      | F(3-0)  |       |

### Professional Planning Practice 2: Skills and Knowledge

The second in an integrated set of core courses for planning students that addresses priority knowledge and skill sets. A comprehensive lecture, workshop and studio course covering history, theory and practice of planning. Impact assessment methods, ecological and economic frameworks and techniques are addressed. The physical planning studio module assumes basic graphic communication skills.

Note: The assignments assume a working knowledge of computer applications, including spreadsheets and databases.

### Environmental Design Planning 639                                      | H(3S-0) |       |

### Master's Degree Project in Planning: The Process

A seminar course to initiate the process of developing and designing the student's Master's Degree Project in Planning. At the completion of the course, the student is expected to have an approvable MDP proposal and a research plan.

Note: Graded on CR/C/F basis only.

Note: Passing grades on any assignment or on the course does not necessarily imply that the Faculty must accept or approve the student's proposal.

### Environmental Design Planning 641                                      | H(3S-0) |       |

### Master's Degree Project Research in Planning

A seminar course to facilitate the timely preparation of the Master's Degree Project in Planning, including its preparation, writing and defense.

Prerequisite: Unconditionally approved Program of Study and successful completion of Environmental Design 683.96 or Environmental Design Planning 639.

Note: Graded on CR/C/F basis only.

Note: Passing grades on any assignment or on the course does not necessarily imply that the MDP Supervisory or Examining Committee must accept or similarly evaluate work submitted to it as part of the MDP.

### Environmental Design Planning 711                                      | Q(0-4T) |       |

### Advanced Practicum in Professional Planning Practice

Approved senior student work experience in professional planning practice. Offered in cooperation with practising professionals and the Alberta Association of the Canadian Institute of Planners.

Prerequisite: Conditionally approved Program of Study.

Note: Graded on CR/C/F basis only.

May be repeated for credit.
Environmental Science ENSC

Instruction offered by members of the Faculty of Science and the Faculty of Social Sciences.
Program Director - T.B.A.

Limited amounts of non-scheduled class time involvement will be required for these courses.

Senior Courses

Environmental Science 401 H(160 hours)

Environmental Science Field Course I

Working in environmental systems, students will be introduced to methods of identifying components of ecosystems, surveying plant and animal communities, and for making quantitative assessments of these communities. The course will be held at the Kananaskis Field Station two weeks immediately prior to the commencement of the Fall Session. During the Fall Session, participants in the course will meet for three hours per week to process field data and to continue discussions on ecological methods and on aspects of biodiversity (particularly in W. Canada).

Note: Open only to students in the Environmental Science program, or by consent of the Program Director

Environmental Science 501 H(160 hours)

Environmental Science Field Course II

The focus will be on disturbances to aquatic and terrestrial ecosystems. Day-length visits will be conducted to appropriate areas that have either undergone or are undergoing severe disturbance (e.g., forest clearcutting, water pollution, open pit mining, etc.). Discussion of potential reclamation strategies will take into consideration a range of impacts (e.g., sociological, economic, chemical, ecological, etc.) of each strategy.

Note: Open only to students in the Environmental Science program, or by consent of the Program Director

Environmental Science 502 F(3-3)

Special Problems in Environmental Management

Briefly surveys many aspects of the professional practice of environmental science including: environmental management, audit and accounting, law and regulation, life cycle assessment, ethics and philosophy; toxicology and epidemiology, hazardous waste management and remediation and reclamation technologies. Includes a major collaborative research project.

Note: Open only to students in the Environmental Science program, or by consent of the Program Director

Environmental Science 503 H(3-0)

Environmental Assessment and Hearings

Environmental assessment is a general policy process meant to minimize the net environmental effects of a development (e.g., golf course, pulp and paper mill, mine). This course formally introduces students to environmental impact assessment (EIA), which is implicit in much of Environmental Science 401, 501 and 502. A review of the key components of federal and Alberta EIA in the first half of the course will serve as a basis for preparing group projects which will be presented in class within simulated environmental assessment hearings. The hearings will highlight the complex problems encountered when scientific evidence is used as a basis for decision-making and policy.

Note: Open only to students in the Environmental Science program, or by consent of the Program Director.

Environmental Science 504 F(0-9)

Research Project in Environmental Science

An independent study or research project under the supervision of one or more faculty members in the Environmental Science program. Originality is emphasized and laboratory and/or field studies are encouraged. Formal written and oral reports will be presented as a necessary component of this course.

Prerequisite: Consent of the Environmental Science Program Director.

MAY BE REPEATED FOR CREDIT

Environmental Science 505 H(0-9)

Special Problems in Environmental Science

A research project under the supervision of one or more faculty members in the Environmental Science program. Formal written and oral reports will be presented as a necessary component of this course.

Prerequisite: Consent of the Environmental Science Program Director.

MAY BE REPEATED FOR CREDIT

Film FILM

Instruction offered by members of the Faculties of Communication and Culture, Fine Arts, and Humanities. For information, contact one of the faculties listed above.

Junior Course

Film 200 F(2-3)

Introduction to Film Studies

An introduction to the techniques and major genres of film, the critical analysis of film, and the history of cinema. Intended to prepare students for further work in Film Studies.

Senior Courses

Film 300 F(2-3)

Introduction to Film Theory

An introduction to the theoretical perspectives that have shaped our understanding of film over the past century. Emphasis will be placed on the analysis of various theories relating to the cinema and the impact that film theory has had on practices of film production.

Prerequisite: Film 200.

Note: This course may not be offered every year.

Film 301 H(2-3)

Topic in National Cinema

Topics will explore various aspects of, or historical moments in, a particular nation’s cinematic culture. Topics might include: Quebecois cinema, current British cinema, German cinema Between the Wars, Canadian cinema, the History of Chinese cinema, etc.

MAY BE REPEATED FOR CREDIT

Film 305 H(2-3)

Topic in Genre

Topics will focus on the style, narrative form, and historical evolution of selected genres, for example, the Documentary, the Western, the Melodrama, the Musical, etc.

MAY BE REPEATED FOR CREDIT

Film 307 H(2-3)

Topic in Cinema and Gender Studies

Topics will explore the representation of gender and sexuality in cinema. Topics might include: Images of Women in the American 1940s, Lesbian Images in Current Cinema, The Queer 1950s, Comparative Images of Women in American and French Cinema, etc.

MAY BE REPEATED FOR CREDIT

Film 321 H(2-3)

History of Popular Cinema

An assessment of the various ways in which the history of film production can be approached, including the development of filmmaking technologies, evolutions in cinematic style and narrative traditions, particularly as they relate to popular cinema, and changing industrial practices.

Prerequisite: Film 200.

Note: This course may not be offered every year.

Film 323 H(2-3)

Issues in Film History

An introduction to key concepts in cinematic historiography. Emphasis will be placed upon non-traditional or non-canonical films and their relationship to dominant histories of filmmaking.

Prerequisite: Film 200.

Note: This course may not be offered every year.

Film 380 F(2-3)

The Art of the Cinema

Intended for the non-specialist student, this course is designed to foster an appreciation of film culture and an understanding of a broad range of cinematic art.

Note: Not open to students with credit in Drama 380 or Film 200. May not be used to fulfill the requirements for the Minor in Film Studies.

Film 401 H(2-3)

Topic in Film Theory

Topics will be organized around particular theorists, schools of theory, historical issues in film culture, or contemporary thought on film. Topics might include: Psychoanalysis and/as Film Theory; Kaja Silverman and Teresa de Lauretis; Modernism and Postmodernism; Feminist Film Theory; Queer Theory and Film; Postcolonial Theory and Film; Semiotics.

Prerequisite: One full-course equivalent in Film or Drama 380.

MAY BE REPEATED FOR CREDIT
Courses of Instruction

Film 403  H(2-3)  Topic in the Director’s Cinema
Topics will examine the distinctive style and concerns of a particular director or directors.
Prerequisite: One full-course equivalent in Film or Drama 390.
MAY BE REPEATED FOR CREDIT

Film 501  H(0-1T)  Research in Selected Topics
Independent study and directed reading or research for students in the Film Minor program in their third or fourth year. Students will produce a major essay or complete a significant research project.
Prerequisite: Students who wish to propose a Film 501 topic must secure a supervisor among the Film instructors and have the topic approved by the Coordinator of Film Studies. The deadlines are June 30 for Fall Session projects and November 30 for Winter Session Projects.
MAY BE REPEATED FOR CREDIT

Advanced Topics in Film Studies  H(2-3)
A seminar for senior students that focuses on a formal, theoretical or historical issue in Film Studies or the culture of the Cinema. Reflects the current research of the instructor.
Prerequisites: Three full-course equivalents in Film, including Film 401.
MAY BE REPEATED FOR CREDIT

Finance  FNCE
Instruction offered by members of the Haskayne School of Business.
Finance Chairperson - M. Robinson
Note: Students have the opportunity to take courses offered by the Haskayne School of Business without the stated prerequisites, with the written permission of the Associate Dean (Undergraduate Programs) as appropriate, upon the recommendation of the instructor of the course. However, should a student fail to achieve satisfactory standing in any course for which the stated prerequisite(s) is (are) lacking, he/she may be required to successfully complete the stated prerequisite(s) prior to being permitted to repeat the course. Students are required to have consent of the Haskayne School of Business Office before registering in 600-level courses offered by the Haskayne School of Business.

Senior Courses
Finance 317  H(3-3T)  Financial Management
Focuses on the investment and financing decision of the firm. Heavy emphasis is placed on valuation and management of working capital and long term assets. The Canadian financial system and sources of financing are surveyed with a view to integrating the financing and investment decisions of a firm.
Prerequisites: Admission to the Haskayne School of Business, second year standing, Mathematics 249 or 251, Economics 201 and 203, Statistics 213 and 217, Accounting 317, and Business and Environment 291.
Note: All students are required to complete a pre-sessional study workbook one week prior to the last day to drop/add a course.

Finance 341  H(3-1T)  Canadian Business Finance
An introduction to business financial management practices in Canada including investment decision, capital markets, and sources, uses and costs of capital over short, intermediate and long run situations.
Prerequisite: Third year standing.
Note: This course is not available for credit toward the Bachelor of Commerce degree. Until August 15, preference in enrollment is given to students who have declared a Management and Society minor.

Finance 343  H(3-2T)  Personal Financial Management
An introduction to personal financial management practices in Canada. Topics discussed may include goal setting, personal financial statements, the mathematics of personal finance, taxation, general and life insurance, retirement planning, investments, and estate planning. Completion of the course should enable students to properly prepare and plan their own financial future.
Prerequisite: Second year standing.
Note: This course is not available for credit toward the Bachelor of Commerce degree. Until August 15, preference in enrollment is given to students who have declared a Management and Society minor.

Finance 443  H(3-1T)  Security Analysis and Investments
Techniques and theories used in selecting securities for various investment objectives. Evaluation of risks and opportunities with respect to purchase, sale, or retention of investments.
Prerequisites: Third year standing and Finance 317.

Finance 445  H(3-1T)  Futures and Options
A study of financial contracts for which the payoffs are contingent upon or derived from the value pre-specified underlying economic variables. Typical underlying variables include the spot price of a commodity and the price of a stock. These contracts are used extensively for hedging and speculative purposes. They also provide useful information about forecasts of the underlying economic variable in a process called “price discovery.”
Prerequisites: Third year standing and Finance 317.
Note: Credit for both Finance 445 and Actuarial Science 539.04 will not be allowed.

Finance 447  H(3-1T)  Capital Budgeting
Capital investment policies of the firm. Real options analysis is used for valuation and decision making. Emphasis on operational matters such as required rate of return estimation, risk analysis, tax factors, and optimization model building. Abandonment decisions and buying versus leasing.
Prerequisites: Third year standing and Finance 317.

Finance 451  H(3-1T)  Advanced Financial Management
Focuses on understanding the advanced theories and practices of financial management that are required for financial majors. Topics include market imperfections arising from asymmetric information and taxation and options. It applies these concepts to study incentives and conflicts in various financial agent pairings. These concepts are then used in a theoretical and empirical study of important financial decisions, such as capital structure, dividend policy, retained ownership, security underwriting, management of distressed firms, managerial compensation, corporate governance and mergers.
Prerequisites: Third year standing and Finance 317.

Finance 459  H(3-0)  Investment Decisions in the Non-Corporate Sector
A study of investment decision problems not normally relating to but affecting the private corporate sector. Individual investment decision models for the public and non-corporate sectors are explored in depth. Supply of and demand for funds in these two sectors are also discussed.
Prerequisites: Third year standing and Finance 317.

Finance 461  H(3-1T)  International Finance
A study of the forces affecting the financial environment of the corporate sector which appear to stem from requirements in the international sector. Balance-of-payments problems, exchange rates, international reserve creations and transfers are some of the major elements studied.
Prerequisites: Third year standing and Finance 317.

Finance 463  H(3-0)  Portfolio Theory and Management
Analysis of the major aspects of the grouping of financial assets. Portfolio analysis and its application to portfolio management, capital market theory and the measurement of financial performance in the presence of risk.
Prerequisites: Third year standing and Finance 317.

Finance 470  F(3-0)  The Calgary Portfolio Management Trust
A comprehensive hands-on review of the modern theories and applications of portfolio management. Students will be responsible for completing the fiduciary duties of an actual fund manager, reporting to a board of directors. Topics may include: selecting securities, hedging with covered options, benchmarking a portfolio, financial reporting, evaluation of risk, risk/return tradeoffs and management.
Prerequisites: Third year standing and Finance 317.
Note: Credit for both Finance 470 and either 443 or 463 will not be allowed.
Note: Enrollment is strictly limited by the Haskayne School of Business and the student must be a Finance concentrator in the BComm program.

Finance 473  H(3-0)  New Venture Finance
(formerly Finance 595.07)
Application of financial theory and analysis to the valuation and financing of new ventures. Course balances learning of concepts, development of analytical skills, and practice in decision making. Opportunity to apply learning to live projects.
Prerequisites: Third year standing and Finance 317.
### Courses of Instruction

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance 475</td>
<td>Management of Financial Institutions</td>
<td>Management of funds and their allocation among cash, primary reserves, loans and investments to provide liquidity and earnings. Services to depositors. Consideration of factors involved in the lending decision, pricing of services, branch location, etc. Strategies for maintaining profitability and liquidity in the face of changing monetary policy. Prerequisites: Third year standing and Finance 317.</td>
</tr>
<tr>
<td>Finance 479</td>
<td>Corporate Risk Management</td>
<td>Introduction to the management of operational and hazard risks based on contemporary financial theories, including risk identification, loss estimation, risk control, risk financing with insurance and other techniques, and enterprise risk management. Prerequisites: Third year standing and Finance 317.</td>
</tr>
<tr>
<td>Finance 595</td>
<td>Selected Topics in Financial Management</td>
<td>Investigation of selected topics related to financial management, emphasizing the application of financial management principles to actual problems in the corporate sector. Prerequisites: Third year standing and Finance 317. MAY BE REPEATED FOR CREDIT</td>
</tr>
<tr>
<td>Finance 601</td>
<td>Managerial Finance</td>
<td>Financial analysis and decision-making within an organization. Cash flows, asset management, and financing techniques. Capital budgeting under certainty and uncertainty; cost of capital concepts and studies. Prerequisites: Management Studies 609 or Accounting 601.</td>
</tr>
<tr>
<td>Finance 745</td>
<td>Futures and Options</td>
<td>After presenting basic definitions, institutional details, and strategies, a general theory of derivative pricing based on the principle of No Arbitrage will be developed. This theory will then be applied to the basic derivative contracts (futures, forwards, put options and call option) as well as exotic options. Using the binomial model, as well as the continuous time model of Black Scholes, hedging and replication will also be examined. Prerequisites: Finance 601.</td>
</tr>
<tr>
<td>Finance 751</td>
<td>Advanced Topics in Financial Administration</td>
<td>Classical and contemporary topics in the theory of finance, including risk and return, the asset selection decision, the financing decision, efficient market analysis, capital structure and cost of capital, the nature of capital markets, and international finance. Prerequisites: Finance 601.</td>
</tr>
<tr>
<td>Finance 753</td>
<td>Problems in Financial Management</td>
<td>The application of financial management principles to actual problems mainly in the corporate sector, including such areas as working capital, management, short, intermediate and long-term financing problems, dividend policy and reorganization. Prerequisites: Finance 601.</td>
</tr>
<tr>
<td>Finance 755</td>
<td>Capital Budgeting</td>
<td>Capital investment policies, real options, required rate of return calculation, mathematical programing models, tax factors, risk analysis, buy versus lease, abandonment considerations. Prerequisites: Finance 601.</td>
</tr>
<tr>
<td>Finance 757</td>
<td>Management of Financial Institutions</td>
<td>Managing a financial institution as contrasted with corporate financial management and investment management. Prerequisites: Finance 601.</td>
</tr>
<tr>
<td>Finance 763</td>
<td>Corporate Risk Management</td>
<td>Comprehensive introduction to theory and practice of the management of operational and hazard risks based on contemporary financial theories, including risk identification, loss estimation, risk control, risk financing with insurance and other techniques, captive insurance, crisis management, reinvestment decisions, and enterprise risk management. Prerequisites: Finance 601.</td>
</tr>
<tr>
<td>Finance 765</td>
<td>Mergers and Acquisitions</td>
<td>A study of economic theory and practical issues around takeover strategies, and takeover defence strategies. Valuation issues, corporate restructuring, corporate governance, and methods of ensuring congruence between management and shareholder goals are also discussed. Prerequisites: Finance 751 or consent of the Haskayne School of Business.</td>
</tr>
<tr>
<td>Finance 775</td>
<td>New Venture Finance</td>
<td>Problems of valuing and financing new ventures. Considerable emphasis is placed on deal structuring, both within a case and project context. Valuing a local new venture as well as developing a detailed financial plan, including a recommended deal structure. Prerequisites: Finance 601 or consent of the Haskayne School of Business.</td>
</tr>
<tr>
<td>Finance 785</td>
<td>Seminar in Financial Management</td>
<td>Intensive study and discussion of current literature and research with respect to selected, advanced topics in Finance. MAY BE REPEATED FOR CREDIT</td>
</tr>
<tr>
<td>Finance 789</td>
<td>Topics in Fine Arts: Comparative Studies and Critical Theory</td>
<td>Topics may include aesthetic theory, theory and/or history of collaborative arts, critical theory, and the history of criticism. Prerequisite: One full Senior Course in either Art, Dance, Drama or Music. Note: Required course for all BMus, BA (Music) and BA Honours (Music) students.</td>
</tr>
<tr>
<td>Finance 801</td>
<td>Introduction to the Fine Arts</td>
<td>A survey of major issues in the fine arts. An overview of the interactions among the arts; the arts and society; an introduction to criticism and aesthetics; technical aspects of the individual arts. Note: Required course for all BMus, BA (Music) and BA Honours (Music) students.</td>
</tr>
<tr>
<td>Finance 501</td>
<td>Topics in Fine Arts: Collaborative Production Projects</td>
<td>An experiential learning course, in which students collaborate to produce works combining elements from among the programs in studio art, acting and directing, design, dance, music composition and performance. Prerequisite: One full Senior Course in either Art, Dance, Drama or Music. MAY BE REPEATED FOR CREDIT</td>
</tr>
</tbody>
</table>
Certains cours intermédiaires et avancés ne sont pas offerts tous les ans. Pour les cours proposés pour l’année en cours, prière de se reporter à l'horaire général de l'Université.

Remarque : Pour s'inscrire à un cours de langue en français, l'étudiant doit avoir obtenu la note de "C-" dans les cours préalables (French 211, 213, 215, 217, 315, 317, 415). Instruction offerte par membres du Département de French, Italian et Spanish dans le Faculté des Humanités.

Department Head - R. Schmidt

Students are encouraged at all times to seek departmental guidance in planning any aspect of their programs. Upon admission to the Major in French each student will be assigned a departmental advisor who will assist with program planning and course selection.

French, Italian et Spanish-speaking students or students with more than matriculation in these languages (including graduates of a bilingual or immersion program) MUST consult the Department to be placed in a course corresponding to their ability. Native speakers are not eligible to take language courses by special assessment or to receive advanced credit for them.

To register in Senior Courses (300 level and above, except French 305 or 377), students must have completed French 215 et 217, or 220, or 221 or have obtained the consent of the Department. Not all Senior Courses are offered every year. Current course offerings are listed in the Master Timetable.

Note: All university level prerequisites for French language courses (specifically French 211, 213, 215, 217, 315, 317, 415) must be met with a grade of "C-" or better.

Junior Courses

French 209
Beginners' French I
Basic elements of the French language, including training in comprehension, speaking, reading and writing of French.

Note: Not open to students with credit in French 20, 30, or 31 (or equivalent).

Note: May not be counted towards a Minor, a Major or Honours in French.

French 211
Beginners' French II
A continuation of French 209.

Prerequisite: French 20, French 209 or consent of the Department.

Note: Not open to students with credit in French 30 or 31 (or equivalent).

Note: May not be counted towards a Minor, a Major or Honours in French.

French 213
Intermediate French
Further development of abilities in spoken and written French. Review of French grammar along with extensive oral and written practice.

Prerequisite: French 211, French 30, French N30 or consent of the Department.

Note: Not open to students with credit in French 215 or 217.

Senior Courses

Not open to students with credit in any University French course other than French 209, 211, 213, 215, 217, 235, 237, 335, 337.

French 217
Introduction to Texts in French
A study of French language, introducing the basic techniques of textual analysis.

Prerequisite: French 30N or 30S or 31 (or equivalents), or French Language Arts 30, or French 213 or 215, or consent of the Department.

Note: Not open to students with credit in any University French course other than French 209, 211, 213, 215, 219, 235, 237, 335, 337.

French 235
Reading French (Beginners I)

Note: Not open to students with credit in French 30 or in any University French course.

Note: May not be counted towards a Minor, a Major or Honours in French.

NOT INCLUDED IN GPA

French 237
Reading French (Beginners II)

Prerequisite: French 235 or consent of the Department.

Note: May not be counted towards a Minor, a Major or Honours in French. Not open to students with credit in French 30 or any University French course other than French 209, 235, 251, 305.

NOT INCLUDED IN GPA

French 315
Vocabulaire et analyse grammaticale I
Analyse grammaticale et enrichissement du vocabulaire à l'aide de l'étude de textes, Discussions ayant pour thème la culture au sens large; pratique de la lecture et de l'écriture.


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>French 317</td>
<td>Vocabulaire et analyse grammaticale 2</td>
<td>H(3-1)</td>
<td>Suite du cours French 315.</td>
</tr>
<tr>
<td>French 323</td>
<td>Introduction au Canada francophone</td>
<td>H(3-0)</td>
<td>Étude de productions culturelles en langue française qui sont représentatives de plusieurs régions du Canada.</td>
</tr>
<tr>
<td>French 333</td>
<td>La francophonie vue à travers les médias</td>
<td>H(3-0)</td>
<td>Étude de sujets d’actualité de la francophonie, tels que présentés dans des médias divers (journaux, magazines, radio, télévision, etc.).</td>
</tr>
<tr>
<td>French 335</td>
<td>Reading French (Advanced I)</td>
<td>H(0-3T)</td>
<td>Development of advanced reading skills in French. Building on strategies, grammar and vocabulary acquired in French 237 or other French courses, more difficult texts will be studied and reading comprehension improved. Readings drawn mainly from journalistic sources, and specialized publications in the Humanities and Social Sciences. Computer-based independent study.</td>
</tr>
<tr>
<td>French 343</td>
<td>Cinéma de langue française</td>
<td>H(3-2)</td>
<td>Introduction à l’analyse de films en français.</td>
</tr>
<tr>
<td>French 369</td>
<td>Langue française, littérature et culture</td>
<td>H(3-0)</td>
<td>Le format et le contenu peuvent varier d’une année à l’autre.</td>
</tr>
<tr>
<td>French 379</td>
<td>Étude approfondie de la langue française</td>
<td>H(3-1)</td>
<td>Études appliquées de phonologie, de syntaxe, de sémantique et de lexicologie. Perfectionnement de techniques choisies d’écriture. Le format et le contenu peuvent varier d’une année à l’autre.</td>
</tr>
<tr>
<td>French 415</td>
<td>Le Canada francophone</td>
<td>H(3-1)</td>
<td>Études avancées des cultures francophones du Canada: langue, littérature et cinéma. Le format et le contenu peuvent varier d’une année à l’autre.</td>
</tr>
<tr>
<td>French 439</td>
<td>Littératures francophones contemporaines</td>
<td>H(3-0)</td>
<td>Études culturelles et littéraires à partir de textes modernes écrits en français et originaires des grandes régions de la francophonie (par exemple, le Maghreb, les Antilles ou l’Indochine). Les sujets traités peuvent inclure la tradition et la modernité, la quête de l’identité, le post-colonialisme, la différence et l’assimilation ainsi que le statut de la femme. Le format et le contenu peuvent varier d’une année à l’autre.</td>
</tr>
<tr>
<td>French 449</td>
<td>Projet spécial en études françaises (langue, littérature ou culture)</td>
<td>Q(0-3T)</td>
<td>Les thèmes de ce cours seront abordés à l’aide de méthodes novatrices.</td>
</tr>
<tr>
<td>French 499</td>
<td>Projet de fin d’études du Premier cycle de français</td>
<td>Q(0-3T)</td>
<td>Recherche pluridisciplinaire de fin d’études, rédigée en français, visant à relier les connaissances et aptitudes acquises dans le cadre de la concentration en français à celles qui ont été acquises dans une spécialisation autre que le français (par exemple, une autre concentration, une mineure ou une minispecialisation). Les projets seront exposés oralement en classe et ensuite discutés.</td>
</tr>
</tbody>
</table>

REMARQUE: Non accessible aux étudiants avec accréditation en French 320 ou 321.


Remarque: Non accessible aux étudiants avec accréditation en French 345. |
### French 507  Q(0-3T)
**Études indépendantes. Stage de recherche en français**
Stage de recherche, effectué sous la direction de professeurs du Département. Rapport rédigé en français. Les étudiants obtiendront soit la note de CR (Completed Requirements) soit celle de F (Failed).
**Préalable:** Autorisation du Département, obtenue après remise par l’étudiant d’une proposition écrite.

French 509  H(3-0)
**Traduction**
Étude avancée de la théorie et de la pratique de la traduction. Les travaux de traduction se feront du français à l’anglais et de l’anglais au français, à partir de textes de nature diverse. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalables:** Romance Studies 409 et trois demi-cours de français de niveau 400 ou autorisation du Département.

### French 511  H(3-0)
**Théories critiques**
Présentation de certaines théories contemporaines qui ont cours en études littéraires et culturelles. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalables:** Trois demi-cours de français de niveau 400, ou autorisation du Département.

### French 515  H(3-1)
**Étude spécialisée de la langue française**
Étude avancée de la structure et de l’usage de la langue française. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalable:** Trois demi-cours de français de niveau 400 ou autorisation du Département.
**Remarque:** Non accessible aux étudiants avec accréditation en French 519 ou 521.

### French 539  H(3-0)
**Étude spécialisée du Canada français**
Séminaire sur des sujets avancés dans le domaine de la langue, de la littérature ou de la culture au sens large. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalable:** Trois demi-cours de français de niveau 400 ou autorisation du Département.

### French 549  H(3-0)
**Étude spécialisée de la francophonie**
Séminaire sur des sujets avancés ayant trait à la langue, aux littératures ou aux diverses cultures de la francophonie. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalable:** Trois demi-cours de français de niveau 400 ou autorisation du Département.

### French 557  H(3-0)
**Littérature et culture françaises du 17e siècle**
Étude de textes choisis du “Grand siècle”. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalable:** Trois demi-cours de français de niveau 400 ou autorisation du Département.

### French 559  H(3-0)
**Littérature et culture françaises du 18e siècle**
Étude de textes choisis du Siècle des Lumières en France. Le format et le contenu peuvent varier d’une année à l’autre.
**Préalable:** Trois demi-cours de français de niveau 400 ou autorisation du Département.

### French 595  H(3-0)
**Perfectionnement des techniques de recherche**
**Préalables:** Trois demi-cours de français de niveau 400, ou autorisation du Département.
**Remarque:** Ce cours est réservé aux étudiants inscrits au programme du baccalauréat spécialisé (“Honours”) de français.

### French 597  H(0-3T)
**Mémoire de baccalauréat spécialisé**
Préalables: French 595 plus trois demi-cours de français de niveau 400, ou autorisation du Département.

### French 599  H(3-0)
**Études spécialisées de la langue, de la littérature ou de la culture**
Séminaire sur des questions d’actualité ayant trait à la langue, à la littérature ou à la culture au sens large. Exemples de sujets traités: la littérature française du Moyen-Âge, l’autobiographie, l’écriture des femmes de langue française, le créole dans les écrits de langue française, etc.
**Préalables:** Trois demi-cours de français de niveau 400, ou autorisation du Département.

### French 605  H(3-0)
**Problématiques littéraires et culturelles**
Études cinématographiques

### French 611  H(3-0)
**Langue française**

### French 615  H(3-0)
**Images, textes, performance**

### French 625  H(3-0)
**Études cinématographiques**

### French 635  H(3-0)
**Le texte narratif**

### French 641  H(3-0)
**Littérature et culture avant 1800**

### French 645  H(3-0)
**La Modernité**

### French 655  H(3-0)
**Francophones**

### French 665  H(3-0)
**Études postcoloniales**

### French 675  H(3-0)
**Féminismes et Gender**

### French 685  H(3-0)
**Voix québécoises et canadiennes**

### French 691  H(3-0)
**Autour d’un auteur**

### French 695  H(3-0)
**Profession et recherche**

### French 699  H(3-0)
**Thèmes spéciaux**