BSCE Admission (Upper Division)

Admission to the upper division B.S.C.E. program requires the following 11 classes with a cumulative GPA of 2.5 or better (and GPA of 2.0 overall)

**Chemistry**
- CHEM 1153 - General Chemistry I (4.0 cr)
- CHEM 1154 - General Chemistry Lab I (1.0 cr)

**Civil Engineering**
- CE 1025 - Intro to Civil Engineering (1.0 cr)
- CE 2017 - Engineering Mechanics and Statics of Materials (5.0 cr)

**Computer Science**
- CS 1411 - Introduction to Programming: Matlab (4.0 cr) or CS 1121 - Introduction to Programming: Visual BASIC.NET (3.0 cr)
  - New Python course also will be added

**Math**
- MATH 1296 - Calculus I (5.0 cr) or MATH 1596 - Honors: Calculus I (5.0 cr)
- MATH 1297 - Calculus II (5.0 cr)
- MATH 3280 - Differential Equations w/Linear Algebra (4.0 cr)

**Physics**
- PHYS 2013 - General Physics I (4.0 cr)
- PHYS 2014 - General Physics Lab I (1.0 cr)

**Writing**
- WRIT 1120 - College Writing (3.0 cr)
Program Requirements – (Fall 2017 catalog)

A grade of C- or better is required in all Civil Engineering courses

BSCE Major Requirements (44 Credits)
- CE 2020 – Computational Tools (4 cr)
- CE 3015 - CAD & Engineering Drawing (3 cr)
- CE 3016 - Surveying (2 cr)
- CE 3025 - Environmental Engineering (4 cr)
- CE 3026 - Project Management (3 cr)
- CE 3027 - Infrastructure Materials (4 cr)
- CE 3115 - Structural Analysis (3 cr)
- CE 3221 - Fluid Mechanics (3 cr)
- CE 3225 - Hydraulics and Hydrology (3 cr)
- CE 3316 - Transportation Engineering (4 cr)
- CE 3426 - Soil Mechanics (4 cr)
- CE 4126 - Design of Concrete (3 cr)
- CE 4255 - Senior Design (4 cr)

Additional BSCE Requirements (21 Credits)
- COMM 1112 - Public Speaking (3 cr)
- MATH 3298 - Calculus III (4 cr)
- STAT 3411 - Engineering Statistics (3 cr)
- PHYS 2015 - General Physics II (4 cr)
- PHYS 2016 - General Physics Lab II (1 cr)
- WRIT 31xx - Adv Writ (3 cr)
- ECON 1022 - Principles of Economics: Macro (3 cr) or ECON 1023 - Principles of Economics: Micro (3 cr)
Electives

Civil Engineering Electives (12 credits):

- CE 4xxx or 5xxx courses
- At least two courses (6 credits) must be taken from the same area (geotech, structures, transportation, or water resources/environmental)

Technical Electives (6 credits):

- Any SCSE course above 2xxx (includes CE courses)
- Additional approved technical electives:
  - CHEM 1152, CHEM 1155 & 1156, CHEM 1175 & 1176
  - SAFE 6051
  - GIS 3564 or GIS 4565 (Note that GIS 3563 is no longer an approved technical elective and in order to register in GIS 3564 students are required to take GIS 3563 first; note that the course GIS 4565 is tailored for CE students).
Liberal Education Requirements

To find courses that count in multiple Lib Ed categories, go to the link below. These courses allow you to stay with the program sample plan. These change often, so make sure you reference this list before registering.

https://www.d.umn.edu/academic-programs/liberal-education-requirements

CE 1000 History of Structures (Summer 2021 fully online, Spring 2022 in person) meets both a Humanities LE requirement and Global Perspectives key topic. No prerequisites needed.
## Sample Course Plan

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Fall Semester: 14 cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 1025 - Introduction to Civil Engineering 1.0 cr</td>
<td></td>
</tr>
<tr>
<td>MATH 1296 - Calculus I 5.0 cr: LOGIC &amp; QR</td>
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<tr>
<td>CHEM 1153 - General Chemistry I 4.0 cr: NAT SCI</td>
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<tr>
<td>CHEM 1154 - General Chemistry Lab I 1.0 cr: NAT SCI</td>
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<tr>
<td>Liberal Education Course 3.0 cr</td>
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<table>
<thead>
<tr>
<th>Year 1</th>
<th>Spring Semester: 16 cr</th>
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<tbody>
<tr>
<td>WRIT 1120 - College Writing 3.0 cr: WRITING &amp; INFO LITERACY</td>
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<tr>
<td>COMM 1112 - Public Speaking 3.0 cr: COMM &amp; LAN</td>
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</tr>
<tr>
<td>MATH 1297 - Calculus II 5.0 cr: LOGIC &amp; QR</td>
<td></td>
</tr>
<tr>
<td>PHYS 2013 - General Physics I 4.0 cr: NAT SCI</td>
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<tr>
<td>PHYS 2014 - General Physics Lab I 1.0 cr: NAT SCI</td>
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<thead>
<tr>
<th>Year 2</th>
<th>Fall Semester: 16 cr</th>
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<tbody>
<tr>
<td>CE 2017 - Engineering Mechanics (Statics and Strength) 5.0 cr</td>
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<tr>
<td>MATH 3280 - Differential Equations w/Linear Algebra 4.0 cr</td>
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<tr>
<td>STAT 3411 - Engineering Statistics 3.0 cr</td>
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<tr>
<td>CS 1411 - Intro to Programming in Matlab 4.0 cr</td>
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<thead>
<tr>
<th>Year 2</th>
<th>Spring Semester: 16 cr</th>
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<tbody>
<tr>
<td>MATH 3298 - Calculus III 4.0 cr</td>
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<tr>
<td>PHYS 2015 - General Physics II 4.0 cr</td>
<td></td>
</tr>
<tr>
<td>PHYS 2016 - General Physics Lab II 1.0 cr</td>
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</tr>
<tr>
<td>CE 2020 – Computational Tools 4.0 cr</td>
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<tr>
<td>CE 3221 - Fluid Mechanics 3.0 cr</td>
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<table>
<thead>
<tr>
<th>Year 3</th>
<th>Fall Semester: 17 cr</th>
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</thead>
<tbody>
<tr>
<td>CE 3015 - CAD &amp; Engineering Drawing 3.0 cr</td>
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<tr>
<td>CE 3027 - Infrastructure Materials 4.0 cr</td>
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<td>CE 3115 - Structural Analysis 3.0 cr</td>
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<tr>
<td>CE 3316 - Transportation Engineering 4.0 cr</td>
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<tr>
<td>ECON 1022 or 1023 – Macro or Micro Econ 3.0 cr: SOC SCI</td>
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<tr>
<th>Year 3</th>
<th>Spring Semester: 17 cr</th>
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<tbody>
<tr>
<td>CE 3025 - Environmental Engineering 3.0 cr</td>
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<tr>
<td>CE 3026 - Project Management 3.0 cr</td>
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<tr>
<td>CE 3225 - Hydraulics and Hydrology 4.0 cr</td>
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<tr>
<td>Liberal Education Course 3.0 cr</td>
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<thead>
<tr>
<th>Year 3</th>
<th>Summer Semester: 5.0 cr</th>
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<tbody>
<tr>
<td>CE 3016 - Surveying 2.0 cr</td>
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<tr>
<td>WRIT 31xx - Advanced Writing 3.0 cr</td>
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<thead>
<tr>
<th>Year 4</th>
<th>Fall Semester: 15 cr</th>
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</thead>
<tbody>
<tr>
<td>CE 4126 - Concrete Design 3.0 cr</td>
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<tr>
<td>Civil Engineering Elective 3.0 cr</td>
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<tr>
<td>Civil Engineering Elective 3.0 cr</td>
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<tr>
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<tr>
<td>Liberal Education Course 3.0 cr</td>
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<table>
<thead>
<tr>
<th>Year 4</th>
<th>Spring Semester: 16 cr</th>
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</thead>
<tbody>
<tr>
<td>CE 4255 - Senior Design 4.0 cr</td>
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<tr>
<td>Civil Engineering Elective 3.0 cr</td>
<td></td>
</tr>
<tr>
<td>Civil Engineering Elective 3.0 cr</td>
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<tr>
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</tr>
<tr>
<td>Liberal Education Course 3.0 cr</td>
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Upper Division Prerequisites

• BSCE (upper division) prerequisite for CE 3xxx and CE 4xxx courses will be enforced

• If you qualify for upper division status now, APPLY FOR UPPER DIVISION prior to advising/registration
  – The Upper Division form is on the CE website and in CE office

• If you are not in upper division because required courses are currently in progress and need to take CE 3xxx courses:
  – Bring your nearly completed upper division form to your advising meeting
  – If you can show your advisor that you will be eligible for upper division at the end of the current semester your advisor will put your name on the upper division exception list
  – Student-specific permission will be given to students listed on the upper division exception list and only for classes listed by your advisor
Surveying (CE 3016)

- Offered each May term and each Fall term
- The fall section of Surveying usually fills so plan to take the summer section if possible (will be online for Summer 2021)
- Internship experience may allow you to waive this course. Academic Petition form with letter from supervisor describing surveying experience should submitted for review.
Senior Design Sections

Two sections

Structures/Geotech focus

Water/Environmental/Transportation

- Take Senior Design in your final semester
- All 3xxx courses must be finished before taking Senior Design
- Advisor permission is required to register
Resilient Precast Engineering Certificate

- Focus on precast concrete
- BUS 2400 (2 cr. online) + CE 4100 (1 cr.)
- CE or Tech. Elective
- Senior D. w/ Precast Project
- Transcript Certificate
  - in-hand and on transcript (notifies employers)
- UG scholarships

Spring Semester
- CE 4126 - Design of Concrete Structures
- BUS 2400 (2 cr.) – Organizational Mgmt + CE 4100 (1 cr.) – Mgmt in Precast Concrete
- Tour MNPA Jobsite

Fall Semester
- CE 4128 - Prestressed Concrete Structures
- CE 4255 - Senior Design (Resiliency Capstone)
- Tour Molin Plants
- Capstone Project in Collaboration with Molin

Contact: Dr. Ben Dymond, dymond@d.umn.edu
Your Advising Meeting

• Visit z.umn.edu/CE_Advising to find a link for your advisor’s appointment schedule

• Think about what courses you will be taking and bring your completed planning sheet

• Your advisor may not know all the answers, but they will help you find out

• Advisors can help guide you, but you are ultimately responsible for ensuring that you meet graduation requirements: APAS
When Courses Fill

• Get on the waitlist

• Auto-enrollment from the waitlist into open seats runs from the first day of open enrollment until the first day of classes.

• Watch your email if you are on a waitlist. If the system can not auto enroll you due to schedule conflict or other reason, the next person in line on the waitlist will be enrolled and you will get an e-mail asking you to fix the problem. You will keep your position on the waitlist but will not be enrolled until the conflict is fixed.
Opportunities to get involved

• Undergraduate research
  – UROP program, 120 hours of research with professor (October and February deadlines)
  – Paid research with CE faculty in all disciplines (contact if interested)

• Student groups
  – American Concrete Institute
  – American Institute of Steel Construction Steel Bridge
  – American Society of Civil Engineers
    • Concrete Canoe & GeoWall
  – Engineers Without Borders
  – Minnesota Society of Professional Engineers
  – Society of Mining Engineers
  – Society of Women Engineers
  – Tau Beta Pi
Scholarships

• External scholarships from companies & professional societies
  – Emails from Department &/or direct from sponsor

• UMD scholarships
  – https://onestop.d.umn.edu/finances/scholarships

• SCSE scholarships
  – https://scse.d.umn.edu/students/scholarships-awards
Career Fairs

- UMD E-Fest Career Fair in September
- The STEM Career Fair is held in February
- All CE students (Freshman through Grad students) should plan to attend both fairs
- Use Career Services resources for preparation
  - Workshops
  - Online Handbook
  - Drop-in resume help
Internships

• Internship opportunities are often emailed to the Civil Engineering student list, posted on CE website, listed on GoldPass (through UMD Career Services), or found on employer websites

• Summer internship tips
  
  – Try to do an internship or co-op before you graduate
  
  – Remember that you are representing UMD and the Civil Engineering Department

  – The Civil Engineering community is tightly knit, so be very careful to not burn bridges (for yourself, future interns, or the department)
Co-ops

- See the Civil Engineering website for full details, including registration requirements, for the Co-op program
  - Talk to Dr. Carranza-Torres for details

- Students **must** register for CE 4096 & 4596 before the co-op begins
Graduate Programs

• Master of Science
  – Additional coursework in an area of specialization
  – Experience beyond classes on research project of importance to industry / community
  – Interact with professionals through research project and conference presentations
  – Funded opportunities at UMD and many other universities
    • Tuition and salary often paid for by research project (~$40K/yr)

Speak with your advisor or Dr. Nate Johnson (Director of Graduate Studies) or another professor EARLY if you are considering applying for an MS degree at UMD or elsewhere.
Graduate Programs

• Master of Science
  – Plan A (Thesis)
    • Approximately 2 years after BS
    • Large research component to compliment classes
  – Plan B (Project)
    • Approximately 1 year after BS
    • Mostly coursework, with sizeable MS project

• Integrated MS (IUG Program)
  • Early admit to MS program; double count up to 9 credits in both BS & MS degrees
  • 3.35/4.00 GPA required for IUG option
  • Must apply at least 1 year before end of BS program to be considered
Questions?