# Mathematics

## Freshman Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
</table>
| Math 1371 Calculus I  
(placement into course, or pre-req)  | Math 1372 Calculus II  
(1371) |
| Phys 1301W Intro Physics I  
(&Math 1371)  | Phys 1302W Intro Physics II  
(1301, &Math 1372) |
| CSE 1001 1st Yr Experience  | Liberal Education course or Writ 1301 |
| Liberal Education course or Writ 1301 | Liberal Education course |
| Liberal Education course |  |

## Sophomore Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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</thead>
</table>
| Math 2373 Lin Alg/Diff Eq  
(1372) | Math 2374 Multivariable Calc  
(1372) |
| Phys 2503 Physics III  
(1302, Math 1372)  | Math 3283W Seq, Series, & Found  
(&2373 or &2374) |
| Liberal Education course | Liberal Education course |
| Open Elective  
(If needed to reach 120 credits) | Open Elective  
(If needed to reach 120 credits) |

## Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>UD Math Algebra or Analysis</td>
<td>UD Math Algebra or Analysis</td>
</tr>
<tr>
<td>UD Math Algebra or Analysis</td>
<td>UD Math Algebra or Analysis</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>Technical Elective</td>
</tr>
</tbody>
</table>
| Liberal Education course | Open Elective  
(If needed to reach 120 credits) |
| Open Elective  
(If needed to reach 120 credits) |  |

## Senior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>UD Math Elective</td>
<td>UD Math Elective</td>
</tr>
<tr>
<td>UD Math Elective</td>
<td>UD Math Elective</td>
</tr>
</tbody>
</table>
| Open Elective  
(If needed to reach 120 credits) | Open Elective  
(If needed to reach 120 credits) |
| Open Elective  
(If needed to reach 120 credits) | Open Elective  
(If needed to reach 120 credits) |

## About This Plan

- This plan is not a contract. Curriculum can change. The APAS is the official method for tracking completion of University degree requirements.
- Shaded courses are only offered in the indicated semester.
- Course pre-requisites and co-requisites (designated by &) are listed below the course number and title. Upper Division (UD) requires admission to the major prior to enrollment.
- Students can take either the CSE-only or University-wide versions of the math course (Math 1371/1271, 1372/1272, 2373/2243, 2374/2263).

## Applying to your Major

Students who have completed the required courses for admission to this major (double-boxed and one with dashed outline on plan) and have a 3.2 UM-TC technical GPA at the end of the fall semester will be guaranteed admission. All other students who have completed the required courses will be considered for admission on a space-available basis. Admission following the spring semester is only based on space availability. The major application database is available at z.umn.edu/csemajorapp.

## Total Credits Needed for Degree: 120

## Department Contact Information

- Website: www.math.umn.edu/undergrad/
- Undergraduate Office Phone: 612-625-4848
- Undergraduate Office: 115 Vincent Hall
- Director of Undergraduate Studies: Bryan Mosher
- Email: mosher@math.umn.edu
- Departmental Advising: ugrad@math.umn.edu

## University Degree Requirements

All students must complete the following Writing & Liberal Education requirements, as noted on their APAS report. See link for full Core & Theme names: z.umn.edu/liberaleducation

### Writing Requirements:

**University Writing:**
Writ 1301/1401 or equivalent

**Writing Intensive (WI):**
Two: 3/4 or 2xxx level **
One: 3/4/5xxx level (in major)*
One: 3/4/5xxx level (any dept.)

Requirements with an (*) will be fulfilled by taking courses at UM-TC required for this major.

### Liberal Education

<table>
<thead>
<tr>
<th>CORES:</th>
<th>THEMES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio</td>
<td>4 of 5:</td>
</tr>
<tr>
<td>Phy*</td>
<td>Civ</td>
</tr>
<tr>
<td>His</td>
<td>DSJ</td>
</tr>
<tr>
<td>SocS</td>
<td>Env</td>
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<td>Ltr</td>
<td>GP</td>
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<tr>
<td>AH</td>
<td>TS</td>
</tr>
<tr>
<td>Mth*</td>
<td></td>
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</tbody>
</table>
Mathematics

POSSIBLE POSITIONS

- **Actuary**: Deals with the financial impact of risk and uncertainty. Actuaries mathematically evaluate the likelihood of events and quantify the contingent outcomes in order to minimize losses.
- **Auditor**: Examine and analyze accounting records to determine financial status of establishment and prepare financial reports concerning operating procedures.
- **Database administrator**: Works with database software to develop/implement ways to manage and store data.
- **Financial analyst**: Provides guidance to businesses and individuals making investment decisions and assess the performance of stocks, bonds, commodities, and other types of investments.
- **Market/survey researcher**: Gathers information and statistical data to help companies understand what types of products people want, who will buy them, and at what price.
- **Personal financial advisor**: Manages and assesses the financial needs of individuals and assists them with investments, tax laws, and insurance decisions.
- **Statistician**: Applies mathematical and statistical knowledge to the design of surveys and experiments.
- **Supply chain analyst**: Apply quantitative skills to answer critical strategic business questions and support operational initiatives. Translate high-level business problems into more specific questions which can be answered by data driven analysis.

**Some of these positions may require an advanced degree.**

INDUSTRIES

- Agriculture
- Banking
- Biostatistics
- Business
- Clinical trials
- Computer information
- Consulting
- Ecology/environmental research
- Education
- Financial services
- Government
- Insurance
- Management
- Manufacturing
- Pharmaceuticals
- Product reliability
- Public health
- Research
- Sports
- Statistics
- Technology

EMPLOYERS

- Allianz Life
- Allstate Insurance
- Ameriprise Financial
- Cognizant Technology Solutions
- Deloitte
- Epic Systems
- Fast Enterprises, LLC
- Google
- IBM
- Meditech
- Microsoft Corporation
- Northwestern Mutual
- PricewaterhouseCoopers
- Securian Financial Group
- Target Corporation
- The Travelers Companies, Inc
- Towers Watson
- US Bank
- UnitedHealth Group/Optum
- Wells Fargo

More Information

Career Center: cse.umn.edu/career
Salary Information: z.umn.edu/csesalary
More Information on Undergraduate Majors: cse.umn.edu/majors

CSE Career Outcomes

Average Starting Salary: $61,675*

Post-graduation Outcomes:*`