MS I Thesis vs. MS II Project/Exam

**Project/Exam:**
- The default pathway for MS students
- Can be completed in 3-4 quarters
- Slightly greater course requirements
- Exact way of satisfying this varies by Area (more later)

**Thesis:**
- Slightly fewer course requirements
- Requires substantial, original research that is presented in a written document (typically 40-80 pages), similar to a journal article
- Requires more time: typically ~ 2 years
- Requires agreement of Major Professor
How do you choose between the two?

1. Think about your career goals and academic interests

2. Recognize that a thesis is a much more substantial commitment, both in terms of time and energy

3. Understand that the thesis option requires explicit support from a faculty member, and that there are only so many thesis projects available...it is not solely your decision
   - It is common for students to prove themselves through coursework

4. Realize the timeline for the MS I is less predictable compared to the MS II

5. It is possible to switch between the two. You are not locked in by any decision today.
## MS Degree Requirements

<table>
<thead>
<tr>
<th></th>
<th>MS Plan I</th>
<th>MS Plan II^</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum number of <strong>graduate engineering course</strong> units (exclusive of 290, 290C and 299)* ×</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>Minimum number of graduate and undergraduate course units (exclusive of 290, 290C and 299)*</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>ECI 290C and ECI 299 (independent study or research)@</td>
<td>Variable (8 min)</td>
<td>Variable (2 min)</td>
</tr>
<tr>
<td>ECI 290 (Seminar)@</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL MINIMUM UNITS REQUIRED</strong></td>
<td>36</td>
<td>36</td>
</tr>
</tbody>
</table>

* ECI 296, prerequisite courses, and S/U Graded courses do not meet these requirements.
× Must also meet core course requirements
@ For MS II students there are alternative pathways to satisfy these requirements (see later)
^ For MS II SESM and EWR students, alternative pathways exist (see later)
Courses

Your course plan should be coherent

• *Most* CEE courses are 4 units. *Some* are 3 (or even 2 or 5).
• MS II (project/exam): 32 units = 8 courses
• MS I (thesis): 27 units = 7 courses

Courses Outside CEE

• *All* graduate engineering courses count (but must make sense)
• May take 1 undergraduate course within CEE or outside CEE without explicit permission
  • Exception is prerequisite courses. These do not count.
• *Some* graduate courses outside of Engineering can be counted for the graduate engineering course requirement...get *written* (e-mail is fine) approval from Area Advisor or Major Prof.
Courses

Required Core Courses

• Group specific
  • ENV ≠ WRE ≠ Geotech ≠ Structures ≠ Transportation
• Must satisfy core course requirement for one group
• Some groups are very prescribed, others are choose \( n \) of those listed

290C and 299

• 299 = research units
• 290C = group meeting
• Always sign up for 290C when you sign up for 299
• Taken with a specific faculty member
• Primarily for MS I students
MS Program of Study

• Your personal “roadmap” to graduation
• Reviewed and approved by either your Major Professor or your Area Advisor
• Discuss with the Area Advisor or your Major Professor at end of first quarter during Advising Week (look for an e-mail later this quarter)
• Submit approved PoS to Lauren by the 2nd week of the second quarter of entering the MS program (or sooner)
• Courses offered available on CEE website, SISWEB or by talking with your Area Advisor/Major Professor
• MS Program Checklist available on CEE website: http://cee.engr.ucdavis.edu/graduate-resources/
Sample MS Program of Study

Program Checklist: MS Degree
Department of Civil & Environmental Engineering

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS: School</td>
<td>Major</td>
</tr>
<tr>
<td>MS: School</td>
<td>Major</td>
</tr>
</tbody>
</table>

**PROGRAM CHECKLIST INFORMATION**

Select One: [ ] MS Plan I: Thesis [ ] Preliminary [ ] Final
Select One: [ ] MS Plan II: Project/Exam [ ] Final

**RESIDENCY REQUIREMENT** (Minimum Three Quarters)

Enter Quarter & Year

**PRE-REQUISITE COURSES** (Required for Students without a Degree in Engineering)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>School &amp; Year</th>
<th>Grade</th>
</tr>
</thead>
</table>

These are courses identified after admission to the Graduate Program. Please see your group adviser or your major adviser to identify if you need prerequisite courses. Refer to the Guidance Manual for more information.

**COURSES TAKEN TOWARDS DEGREE REQUIREMENT**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
<th>Term &amp; Year</th>
<th>Course prefix and number</th>
<th>Units</th>
<th>Term &amp; Year</th>
</tr>
</thead>
</table>

**TOTAL UNITS**

- MS Plan I: 27 units of graded coursework (at least 23 must be graduate engineering courses)
- MS Plan II: 32 units of graded coursework (at least 28 must be graduate engineering courses)

**TOTAL UNITS**
• For MS II students, the Area Adviser is your default MP
  • You may find an alternative major professor
• All MS I students must have an individual major professor
• How to find an alternative MP, if you don’t have one?
  • Talk to multiple faculty.
  • Look at websites, publications and courses taught to get an initial idea of the specific type of work they do.
• Be clear about your goals (MS I or MS II)
• Schedule meetings (e-mail...be persistent) or drop in (does not always work)
Each Area does things slightly differently...when in doubt talk with your Area Advisor

**Default Option for Environmental/Water Resources (EWR) Students**
- Take (and pass) new ECI 289C project course in Spring Quarter
- Replaces 299/290 requirement

**Default Option for Structural/Mechanics (SESM) Students**
- Take 36 units of graded coursework (at least 32 grad)
- Pass written comprehensive exam; typically take in spring or summer of Y1; may retake; offered multiple times a year
- Replaces 299/290 requirement

**Option Available for all Areas**
- Complete a project under the supervision of an individual faculty member over 1-2 quarters (and/or summer); 2 units 299 and 1 unit 290 required
MS II Timeline

1. Take 3 courses
2. Develop complete program of study
3. Consult with area advisor
4. Take ECI 290?

**Fall Quarter**

1. Take 2-3 courses
2. Take ECI 290?
3. Update your PoS

**Winter Quarter**

1. Complete coursework
2. Take ECI 290?
3. Update your PoS
4. Complete project OR take Exam (SESM) OR take ECI 289C (EWR)

**Spring Quarter**

1. Finish project OR take Exam?

**Summer?**

PoS
MS I Timeline

1. Take 2-3 courses
2. Turn in signed PoS
3. Agreement with MP
4. Start developing research plan

Fall Y1:
- Take 2-3 courses
- Turn in signed PoS
- Agreement with MP
- Start developing research plan

Spring Y1:
- Research
- Write thesis

Fall Y2:
- Take 1-2 courses
- Research
- Writing thesis
- Submitting to thesis committee (1 month lead time)
- Submit thesis to Grad Studies

Spring Y2:
- Writing thesis
- Submit thesis to Grad Studies

Take ECI 290 anytime...
Prerequisites – Students without Engr. Degree

Select four courses from the following six categories:
- ENG 103 (Fluid Mechanics)
- ENG 104 (Mechanics of Materials)
- ENG 105 (Thermodynamics) or Chem 110C or Chem 107A or Chem 107B
- ECI 141 (Engineering Hydraulics)
- ECI 115/189E (Computer Methods in Civil and Environmental Engr.)
- ECI 114 (Probabilistic Systems Analysis)

Including at least two of the following three classes:
- ENG 103 (Fluid Mechanics)
- ENG 104 (Mechanics of Materials)
- ENG 105 (Thermodynamics)

And 6 additional upper division engineering course units (minimum of 2 courses) approved by the student’s major professor or GPC Rep

These do not count towards the degree requirements