Parallel Plans for Majors in the  
College of Science and Engineering  
Center for Academic Planning & Exploration

Purpose:
This guide was created to help students interested in majors within the disciplines of Physical Sciences, Engineering, or Mathematics. Many of these programs are offered through the College of Science and Engineering and are in high demand. This guide is intended to be used in conjunction with a CAPE coach, Academic Advisor, or Career Counselor as a starting point for developing a parallel plan.

Description:
At the University of Minnesota’s College of Science and Engineering (CSE), recent trends show students’ interests in engineering, physical sciences and mathematics fall into one of the themes below. For the purpose of this exercise, a theme represents your primary area of academic and career interest.

1. Impacting the Environment
   - Bioproducts and Biosystems Engineering
   - Chemistry
   - Civil Engineering
   - Earth Sciences
   - Geological Engineering
   - Materials Science and Engineering
   - Chemical Engineering
   - Electrical Engineering
   - Mechanical Engineering

2. Medical Devices and Health Industries
   - Aerospace Engineering and Mechanics
   - Astrophysics
   - Chemical Engineering
   - Bioproducts and Biosystems Engineering
   - Computer Engineering
   - Computer Science
   - Electrical Engineering
   - Materials Science and Engineering
   - Mathematics
   - Mechanical Engineering
   - Physics
   - Statistics

Note: Many majors are in more than one theme area
3. Computation, Modeling, and Design

<table>
<thead>
<tr>
<th>Aerospace Engineering and Mechanics</th>
<th>Astrophysics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering</td>
<td>Bioproducts and Biosystems Engineering</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Computer Engineering</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Physics</td>
<td>Statistics</td>
</tr>
</tbody>
</table>

**Directions:**

Whether you are choosing a major in CSE or in another college, consider the following. Reflect on the questions below as they relate to both your academics and your interests. By exploring these areas, you may discover many options for majors that share common elements you find rewarding.

**Academic Performance:**

- How strong is your overall record? In your technical courses (Calculus, Chemistry, Physics)?
- What courses do you most enjoy? What courses are you the most successful in? Are there any trends in your course selection and grades?
- As you consider other majors, are there minimum GPA requirements you must meet? What are they?
- If you are transferring colleges to pursue a major, are there any remaining prerequisites to complete before you can transfer?

**Action Items:**

- Review your APAS report. As you consider other majors, use the “Generate a What If APAS Report (major shopping)” feature. This will help you see what progress you have made towards alternative majors.
- You can also review course requirements for individual majors through the U of M catalog: [http://www.catalogs.umn.edu/index.html](http://www.catalogs.umn.edu/index.html)
- Attend information sessions. Many colleges and programs offer information sessions where college/department staff members discuss requirements for certain programs, as well as any unique procedures for declaring your major or transferring into the program from another U of M-Twin Cities college. Look on the appropriate college or department webpage or see the calendar at [http://cape.umn.edu/](http://cape.umn.edu/)
Interests and Values:
- What activities do you enjoy? When are you at your best?
- What values are important in your life?
- Does your family have expectations for you regarding career options?
- Do you enjoy solving problems? What types of problems?
- How important is it to you to remain in a science-oriented career path?

Action Items:
- Complete a career assessment such as the Strong Interest Inventory, which can help you identify additional majors and careers that match your interests. CAPE and your college career services offices administer this inventory along with other assessments such as StrengthsQuest.
- If you have been strongly influenced by family or friends to pursue a major or career related to Physical Sciences, Engineering, or Mathematics, you may need to think about how you can discuss your decision with them from a strengths-based perspective. Check out the Family, Culture and Identity Influences Action Guide as a starting point and also consult with a CAPE coach, career counselor, personal counselor, or trusted mentor for additional feedback.
- Try the Identifying Values activity in the CAPE Action Plan.

Transferable Skills
Transferable skills are the competencies you have gained from your work, coursework, and extracurricular activities that can be applied or “transferred” to other settings. These skills can be “soft”—think communication, interpersonal skills, leadership, critical thinking—or “hard”—technical skills such as knowing different programming languages, computational methods and knowledge and use of lab equipment. If you are considering changing majors or looking for a parallel plan, identifying your transferable skills can help find programs that can be a good fit for you while helping you continue to achieve your academic and career goals.

Consider the following:
- What key experiences have helped you develop your “soft” skills? What about your “hard” skills?
- Of the technical coursework you’ve completed, what have you enjoyed? What have you not enjoyed?
- When you think about using these skills in a career setting, are there limits? (i.e. For some jobs you may need to know the C++ programming language, is that the only skill the employer is concerned with?)
Action Items:

- Visit ‘Understanding STEM Skills’ at [iSeek.org](http://www.iseek.org/careers/stemsskills.html) to learn more about important skills required for careers in Science Technology, Engineering, and Mathematics (STEM).
- Using information from the site above, browse careers by important skills for STEM careers at O*Net online. [http://www.onetonline.org/finddescriptor/browse/Skills/](http://www.onetonline.org/finddescriptor/browse/Skills/)
  - For those skills that you rated as Some Ability or Strong Ability, think about how you would develop those skills further in a major in CSE or programs outside of CSE.

Additional Resources:

- The Career Center for Science and Engineering has a series of guides titled: What Can I Do With A Major In…. Check these out! [http://ccse.umn.edu/majors/](http://ccse.umn.edu/majors/)
- Center for Academic Planning & Exploration: [http://cape.umn.edu/](http://cape.umn.edu/)
- Your college career services office: [http://www.career.umn.edu/](http://www.career.umn.edu/)