Table of Contents

I. Getting Started........................................................................................................................................4
    How do I change or correct my major? ........................................................................................................4
    How do I make a class schedule and register for classes? .......................................................................5

II. Important Dates .......................................................................................................................................5
    Course Registration Dates: .........................................................................................................................5
    New Student Orientation ...............................................................................................................................5
    Engineering School NSO Events ..................................................................................................................6
    I. Friday, September 3 ................................................................................................................................6
    II. Tuesday, September 7 .............................................................................................................................6

III. Advance Registration Process for Fall 2010 .........................................................................................7
    Choosing Your Major ................................................................................................................................7
    Curriculum Deferred (CD) ............................................................................................................................7
    Choosing and Scheduling Your Courses .....................................................................................................7
    Course Selection Tips ................................................................................................................................8
    Additional pointers to help you plan out your schedule .........................................................................8

IV. Advanced Placement Credit and Advanced Standing Credits ............................................................9
    Types of Advanced Standing Credit ..........................................................................................................9
        What counts for Advanced Standing Credit? ........................................................................................9
        Evaluation of Credits .............................................................................................................................9
    Registering for Courses Before Knowing Your Major ............................................................................10
        Advanced Standing Credit Results .......................................................................................................10
    Internal Departmental Exams ....................................................................................................................10

V. Academic Advising and Support ............................................................................................................11
    Faculty Advisors .......................................................................................................................................11
    Undergraduate Curriculum Chairs (UG Chair) ..........................................................................................11
    Undergraduate Coordinators .....................................................................................................................11
    Professional Advisors ...............................................................................................................................11
    Orientation Peer Advisors (OPA!) ............................................................................................................11
VI. Major Requirements and First-Semester Courses: Bachelor of Science in Engineering (BSE)........12
    Bioengineering.................................................................12
    Chemical and Biomolecular Engineering..................................13
    Computer Engineering..........................................................14
    Computer Science..................................................................15
    Digital Media Design..............................................................16
    Electrical Engineering............................................................17
    Materials Science and Engineering.........................................18
    Mechanical Engineering and Applied Mechanics .......................19
    Systems Science and Engineering..........................................20
VII. Major Requirements, Recommended First-Semester Courses:: Bachelor of Applied Science (BAS) 21
    Applied Science in Biomedical Science..................................21
    Applied Science in Computer Science, or Applied Science in Computational Biology, or Applied Science in Computer and Cognitive Science.........................................22
VIII. Major Requirements: Curriculum Deferred (CD) ........................................23
    Curriculum Deferred................................................................23
IX. Specialized Dual-Degree Programs ..............................................25
    The Jerome Fisher Program in Management and Technology (M&T).................................................................25
    Computer and Cognitive Science Program (CCS)..................................................27
    Liberal Studies and Technology Program (L&T)..............................................27
X. Requirements of the Curricula ..................................................................27
    The Engineering Writing Requirement ..................................................28
    No credit list ............................................................................28
XI. Engineering and Campus Resources.........................................................28
    Other Links of Interest ................................................................28
        Student Activities ..................................................................28
        Advancing Women in Engineering (AWE) Program.......................28
        Technical Communication Program (TCP) Program .........................28
        Engineering Library ................................................................28
        Weingarten Learning Resources Center ............................................28
        The Tutoring Center .................................................................29
        Career Services ........................................................................29
XII. Penn Engineering Contact Information ...............................................30
    Undergraduate Chairs & Coordinators ............................................30
I. Getting Started

Most of the information you need is online on the Penn website and on the Penn Engineering Freshman page. This Guidebook may not give you all the information you need, so please utilize the online resources listed here:

- **Penn Engineering Freshman Site** ([http://www.seas.upenn.edu/undergraduate/freshman/](http://www.seas.upenn.edu/undergraduate/freshman/)): All the information in this Guidebook and more can be found here. Keep checking for updates.
- **Campus Express** ([http://campusexpress.upenn.edu/](http://campusexpress.upenn.edu/)): This is the one-stop site that will get you started on everything. If you have not visited this site yet, do it now!
- **PennKey** ([http://www.upenn.edu/computing/pennkey/](http://www.upenn.edu/computing/pennkey/)): You need a PennKey to gain access to all Penn websites that are password-protected, including the Advance Registration page.
- **Penn Portal** ([http://www.upenn.edu/pennportal/](http://www.upenn.edu/pennportal/)): With your PennKey you can access all the resources you need as a freshman, including registration, campus services, and local attractions.
- **Registrar** ([http://www.upenn.edu/registrar/index.html](http://www.upenn.edu/registrar/index.html)): Want to know everything about courses offered and how to register? You can find this information at the Registrar's website.
- **Advance Registration Instructions** ([Download pdf instructions](#)): The step-by-step how-to guide.
- **Penn Engineering Homepage** ([http://www.seas.upenn.edu/](http://www.seas.upenn.edu/)): This website will give you all the information about Penn Engineering.
- **Penn Engineering Email Account** ([https://www2.seas.upenn.edu/accounts/](https://www2.seas.upenn.edu/accounts/)): It is important to sign up for your account as soon as possible so that you can receive important announcements from Penn Engineering. If you have problems with your Penn Engineering email, please contact cets@seas.upenn.edu.
- **Penn Engineering Syllabi Repository** ([http://www.seas.upenn.edu/syllabus](http://www.seas.upenn.edu/syllabus)): Interested in the content of Engineering courses? You can find them here. Please note that you will not find math and science course descriptions in this repository.
- **Penn Engineering Handbook** ([http://www.seas.upenn.edu/undergraduate/handbook/](http://www.seas.upenn.edu/undergraduate/handbook/)): You will find a comprehensive list of all the rules and regulations that pertain to being an undergraduate at Penn Engineering here.

How do I change or correct my major?

In your packet you will find a postcard that looks like the following:

The major you selected on your application to Penn is on the postcard included in this mailing. If it is incorrect, if you would like to change your major, or if you would like to declare a major, please email the following information with “Major Correction” as the subject, to apo@seas.upenn.edu:

1. Full name
2. 8-digit PennID number
3. Correct Engineering major

You may also go to the Engineering Freshman Website for directions on changing your major. You can also find a list of majors there. The deadline to change/declare a major is Friday, July 30, 2010.

*Please note that you cannot change your major to Curriculum Deferred, Digital Media Design, Marketing & Social Systems Engineering, or Management & Technology.*
How do I make a class schedule and register for classes?
You can access the online version of the Fall Freshman Course Timetable from the Registrar’s website listed above. Advance Registration will open on Monday, June 28, 2010 and ends on Friday, July 23, 2010. All the tools you need are accessible from the PennPortal. After Advance Registration closes, you will need to wait for the Course Selection period, beginning Thursday, August 12, 2010 in order to make changes in your schedule.

You do not need to speak with an advisor before you register. This Guide should give you all the necessary information to get started, so read it carefully. However, if you are having trouble with the registration process, you should contact your orientation peer advisor (OPA!).

II. Important Dates

Course Registration Dates:

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Advance Registration</td>
<td>Monday, June 28 – Friday,</td>
</tr>
<tr>
<td>Period</td>
<td>July 23</td>
</tr>
<tr>
<td>Course Selection - Drop Period</td>
<td>Thursday, August 12</td>
</tr>
<tr>
<td>Begins</td>
<td></td>
</tr>
<tr>
<td>Course Selection Period Ends</td>
<td>Friday, September 24</td>
</tr>
<tr>
<td>Drop Period Ends</td>
<td>Friday, October 15</td>
</tr>
</tbody>
</table>

New Student Orientation

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Student Orientation Begins</td>
<td>TBD</td>
</tr>
<tr>
<td>International Student Orientation Ends</td>
<td>TBD</td>
</tr>
<tr>
<td>All Freshmen Move In</td>
<td>Thursday, September 2</td>
</tr>
<tr>
<td>New Student Orientation Begins</td>
<td>Thursday, September 2</td>
</tr>
<tr>
<td>New Student Orientation Ends</td>
<td>Tuesday, September 7</td>
</tr>
<tr>
<td>First Day of Class</td>
<td>Wednesday, September 8</td>
</tr>
</tbody>
</table>
Engineering School NSO Events
Please note the following items are part of your Penn Engineering New Student Orientation activities. Your attendance is required at all School events. Please note that events are subject to change.

### I. Friday, September 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
</table>
| 5:00-7:00 P.M.   | Penn Engineering Open House co-sponsored by Advancing Women in Engineering<br>All Engineering students should plan to have dinner at the Engineering School. You will:<br>  
  * Meet your OPA! and enjoy a cookout with other Engineering freshmen<br>  
  * Learn about clubs and organizations within the Engineering School | TBD               |

### II. Tuesday, September 7

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30-10 A.M.</td>
<td>Breakfast&lt;br&gt;Meet with OPA! and have breakfast. Discuss plans for the day and field academic questions.</td>
<td>Engineering Quad</td>
</tr>
<tr>
<td>10-10:45 A.M.</td>
<td>Dean's Meeting&lt;br&gt;Welcome to Penn Engineering by Dean Glandt, Vice Dean Sun, and Associate Dean Keenan.</td>
<td>Meyerson B-1</td>
</tr>
<tr>
<td>10:45-11:30 A.M.</td>
<td>Tour of Engineering Quad&lt;br&gt;Student-guided tour by department. You will be led by your OPA! to navigate the geography of your departments and first classes.</td>
<td>Various Locations</td>
</tr>
<tr>
<td>11:30 A.M.-Noon</td>
<td>Departmental Meetings&lt;br&gt;Learn about departmental requirements.</td>
<td>Various Locations</td>
</tr>
<tr>
<td>Noon-1 P.M.</td>
<td>Lunch&lt;br&gt;Lunch with OPA!s and faculty advisors.</td>
<td>Engineering Quad</td>
</tr>
<tr>
<td>Noon-5 P.M.</td>
<td>Faculty Advising Meetings&lt;br&gt;Meet with faculty advisors.</td>
<td>Faculty Offices</td>
</tr>
</tbody>
</table>
| 1-3 P.M.         | Information Sessions<br>30-minute back-to-back sessions on:<br>  
  * (1-1:30) Dual Degree<br>  
  * (1:30-2) Career Services<br>  
  * (2-2:30) Pre-Med<br>  
  * (2:30-3) Study Abroad | 3rd Floor, Towne |
| 1-3pm            | Majors/Resources Fair<br>Learn about the different options for the different Penn Engineering majors | 1st Floor, Towne |

Note: M&T students, please refer to the materials you receive from the M&T Office for more information on your required activities.
III. Advance Registration Process for Fall 2010

Even when you advance-register, you are not guaranteed enrollment in every class that you request. Depending on how many students request a course, some courses may fill up faster than others. You will not be shut out of any class that is required for your major, although you may not get your first choice of time or instructor. In particular, if you register for chemistry, math, or physics but do not get them on your roster because they are full, DON'T PANIC! Try registering during the Add/Drop Period (August 12 through September 24) through Penn InTouch. Alternatively, when you arrive on campus go to the departmental office of the course in question.

If you miss the Advance Registration deadline on July 23, 2010, you will need to wait for the Course Selection/Drop period, beginning on August 12, 2010, to make changes in your schedule. The Course Selection period will end September 24, 2010 and the last day to drop a class is October 15, 2010.

Choosing Your Major

You do not have to choose your final major now. Penn Engineering offers two degree programs and a total of 14 majors. Moving from one major to another within Engineering is fairly easy to facilitate. In a few cases, though, your switch after the first semester may require some catching up. If you feel certain about a particular major and degree program, you are encouraged to go ahead with that major. However, if you are not yet decided, follow the guidelines for Curriculum Deferred. Please know that in ALL cases, the courses you select for your first semester will not restrict you to a particular major.

Curriculum Deferred (CD)

Freshmen who do not initially choose a specific major when applying to Penn are designated “Curriculum Deferred” (CD). Many first year students are CD (between 80-100 freshmen each year or 20-25% of the incoming class), so do not feel as though you are the exception. Since you are not required to declare your Engineering major until the end of your first year, you have time to learn about each department. During New Student Orientation and throughout the fall semester, the Office of Academic Programs (APO) and the academic departments organize events to give you several opportunities to explore degree options.

Choosing and Scheduling Your Courses

Penn Engineering freshmen are limited to a maximum registered course load of 5.5 CUs (credit units) in the first semester. You should register for no more than 5.5 CUs, or 5 courses, for the first semester. One “CU” represents one course. In courses with lab components, the course will have a total of 1.5 CUs. In the case of Introductory Chemistry, the lab is actually a separate 0.5 CU course (e.g. CHEM 101 is 1 CU and CHEM 053, the companion lab course, is 0.5 CU).

Each Bachelor of Science in Engineering (BSE) and Bachelor of Applied Science (BAS) major has six categories of requirements:

- Math
- Science
- Engineering
- Electives related to your major a.k.a. Technical Electives, Application Focus, Career Path, Concentration (these electives are specified on the Worksheet of your intended major)
- Social Science and Humanities/Technology in Business and Society (SSH/TBS),
- Free Electives

The recommended courses for your first semester are listed by each degree program and major (see below for outlines of requirements). Look over the table of courses for the major you have chosen. If you are a CD student, follow the guidelines under “Curriculum Deferred” or follow recommendations for one of the majors.
Course Selection Tips

- Before actually entering the registration process, outline a schedule. This can be done easily through the [Penn Portal](https://www.seas.upenn.edu).
- Although you will be registering for up to five courses in your first semester, you should list more than the five since you may not be able to get all of your first choices (further instructions can be found in the [Course Timetable](https://www.seas.upenn.edu)).
- Working out a satisfactory course roster and schedule can be time-consuming. You will have to play around with your desired courses to be sure your courses are evenly spaced out over the entire week.
- Try to distribute your classes among labs, lectures, and recitations to make your program more interesting and perhaps less stressful.
- Some of the best courses around campus are found in the very “unusual” majors or disciplines at Penn. We urge you to look broadly and thoroughly to find topics and courses that will capture your imagination.
- If you are stuck, you can ask your OPA! for registration strategies.

Additional pointers to help you plan out your schedule

- No courses among your first set of choices should have times that overlap.
- Classes end ten minutes before the scheduled end time. So, you can schedule classes back to back and have plenty of time to make it from one to the other.
- You are strongly encouraged to space out your classes evenly over all five days of the week so that you are not overloaded on any given day.
- In general (of course there are exceptions), Monday, Wednesday, and Friday classes start on the hour and run for 50 minutes, and Tuesday and Thursday classes are in one-and-a-half-hour time slots with 80-minute classes.
IV. Advanced Placement Credit and Advanced Standing Credits

Sufficiently high scores on some nationally sponsored/administered secondary-school examinations (Advanced Placement, International Baccalaureate, A-Levels, etc.) may be eligible for advanced standing at Penn. This may make it possible for the recipient to complete the Bachelor’s degree in less than four years.

Advanced Standing Credits are not granted until the student has been admitted as a freshman. The original certificate or an official copy of the certificate from the appropriate examining agency must be received and evaluated by Penn’s Office of Undergraduate Admissions for the credit to be granted. Each student will be evaluated on a case-by-case basis.

All engineering students receiving AP, IB, and/or A-level credit are required to complete the credit-evaluation process during their freshman year.

Types of Advanced Standing Credit

What counts for Advanced Standing Credit?
You can earn advanced standing credits in the following ways:

- By taking an Advanced Placement Examination administered by the Educational Testing Service (ETS), the International Baccalaureate exam, or any other similar exam while in high school and receiving a sufficiently high score.
- By passing an optional internal examination given at Penn at the start of each semester. Please check with the respective department to see if these exams are being offered. See below, page 10, for a table of common internal exams for Engineering students.
- By taking a course at another college or university prior to matriculating at Penn, receiving a sufficiently high grade, and receiving approval by the respective department at Penn.

Evaluation of Credits

When you arrive at Penn, bring your high school transcripts or foreign examination certificates to the Office of Transfer Credit and Advanced Standing. The staff will be glad to help you with whatever questions you have.

Exams or scores that are not listed do not qualify students for advanced standing credit. Equivalents such as “History of Art Free” and “English Free” count as one History of Art credit and one English credit respectively, although no specific course requirements are fulfilled. For engineers, this type of AP credit may be used to satisfy Social Science and Humanities requirements or Free Electives.

Please note that “English Free” does not satisfy the Writing Requirement.

Credits are awarded according to current policy. For more detailed information regarding the University's Advanced Placement, A-Level examinations, International Baccalaureate Higher Level exams, and other foreign exam board policies, please contact the Office of Transfer Credit and Advanced Placement. The contact information is as follows:

Office of Transfer Credit and Advanced Placement
College Hall
215-898-6080

You may find the latest policies on International Advanced Standing at:
http://www.admissionsug.upenn.edu/applying/standing.php
You may find the latest policies on Advanced Placement at:
http://www.admissionsug.upenn.edu/applying/advanced.php

Please note that the University AP credit policy remains under ongoing review and is subject to change.
Remember to bring ALL your lab notes, lab reports, and other materials for AP credit evaluation.
Also note that students with AP credits who take the equivalent course at Penn will forfeit the AP credit.
Registering for Courses Before Knowing Your Major

Advanced Standing Credit Results
Most first-year students are required to register before they know how much Advanced Standing Credit they will earn. If you are in this position:

- Register for the courses you think you will take.
- If it turns out that you need to switch, you will be able to do so during the Course Selection period.
- Students will not be turned away from the introductory science and math courses. You will be able to get into any class required for your major, although you may not get your first choice for time and professor. If Advanced Standing Credit has been earned for a course, and if that course credit matches your curriculum requirements, then that requirement has been satisfied. For instance, if your degree program requires MATH 104 and you obtain credit for that course by scoring well on an AP exam, then you do not need to take MATH 104. You may now move on to the next level of that course (i.e., MATH 114) or choose other options. Advanced Standing Credits will give you more room in your four-year plan for additional course work.

Refer to the chart below for examples:

<table>
<thead>
<tr>
<th>Advanced Standing Credit Earned</th>
<th>Course Equivalent</th>
<th>Take Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>MATH 104</td>
<td>MATH 114</td>
</tr>
<tr>
<td>PHYS 93</td>
<td>PHYS 140</td>
<td>PHYS 141</td>
</tr>
<tr>
<td>PHYS 093 (lecture) + PHYS 050 (lab)</td>
<td>PHYS 150</td>
<td>PHYS 151</td>
</tr>
</tbody>
</table>

Internal Departmental Exams
If you have studied a subject in which an Internal Departmental Exam is offered, you are encouraged to take the exam. No records are kept of those students who do not pass. Thus if you take the exam and fail, you have lost nothing. If you pass, however, you will have eliminated one of your course requirements and gained more flexibility in choosing your four-year curriculum. The exams are open to all students without charge. They are held immediately when the semester begins. Contact the respective departments for details and updates.

<table>
<thead>
<tr>
<th>Department</th>
<th>Exam</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>Yes - Internal</td>
<td><a href="http://www.math.upenn.edu/ugrad/transfer.html">http://www.math.upenn.edu/ugrad/transfer.html</a> Email: <a href="mailto:transfer@math.upenn.edu">transfer@math.upenn.edu</a></td>
</tr>
<tr>
<td>Biology</td>
<td>Yes - Internal</td>
<td><a href="http://www.bio.upenn.edu/programs/undergraduate/information/">http://www.bio.upenn.edu/programs/undergraduate/information/</a> Email: <a href="mailto:bio-undergraduate@sas.upenn.edu">bio-undergraduate@sas.upenn.edu</a> Phone: 215-898-7121</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Yes - Internal</td>
<td><a href="http://www.chem.upenn.edu/chem/undergraduate/advanced.php">http://www.chem.upenn.edu/chem/undergraduate/advanced.php</a> Email: <a href="mailto:chemugrad@sas.upenn.edu">chemugrad@sas.upenn.edu</a> Phone: 215-898-8311</td>
</tr>
<tr>
<td>Physics</td>
<td>No - see Physics website for more information</td>
<td><a href="http://www.physics.upenn.edu/ugrad/">http://www.physics.upenn.edu/ugrad/</a></td>
</tr>
</tbody>
</table>

Please note that credit for PHYS 91 and PHYS 92 cannot be used to fulfill the Physics requirement for SEAS students.
V. Academic Advising and Support

There are several components to the academic advising system at Penn Engineering. These resources include support at the department, school, and university levels. These are described below.

**Faculty Advisors**

Each student is assigned a Faculty Advisor. At the Dean's meeting during New Student Orientation you will learn who your advisor is and how to contact him or her. Your Faculty Advisor will guide you in the selection of courses in your major (including the appropriate math and science courses) and in understanding more about the various fields of engineering within your declared major.

If you are a CD student, your Faculty Advisor will help you in the selection of courses that would help keep your academic options open. Your Faculty Advisor will also guide you in helping you decide on your major among the various fields of engineering that are available to you.

**Undergraduate Curriculum Chairs (UG Chair)**

Each academic department has a faculty member who serves as that department’s Undergraduate-Curriculum (UG) Chair. The UG Chair oversees his or her department’s undergraduate programs, including curriculum development, exceptions to major requirements for individual students, and the faculty advising process in that department. Students frequently meet with their UG Chair to discuss academic matters or requests involving their major.

**Undergraduate Coordinators**

An Undergraduate Coordinator assists each Undergraduate Chair in the School's academic departments. This person will be able to help answer your advising-related questions. During the summer months, Undergraduate Coordinators and Academic Advisors in the Office of Academic Programs are available to answer your questions between the hours of 9:00 a.m. and 5:00 p.m. EDT, Monday through Friday (except holidays). Refer to the directory or see below for a list of contacts.

**Professional Advisors**

Advisors in the Office of Academic Programs (APO) are here to assist you in selecting your courses. They can also help you interpret school policy and explore other academic options such as study abroad, dual degrees, minors, and sub-matriculation opportunities in graduate programs across the University. If you find yourself in some academic trouble, need a referral for academic support, or are having some personal problems, APO advisors are available to assist you during normal business hours in whatever way they can.

Walk-in advising hours during the Summer are as follows:

- Office of Academic Programs
  - 111 Towne Building
  - 2 P.M. to 4 P.M. on Wednesdays (except University holidays)

Walk-in advising hours during the academic year are as follows:

- Office of Academic Programs
  - 111 Towne Building
  - 2 P.M. to 4 P.M., Mondays through Thursdays (except University holidays)

**Orientation Peer Advisors (OPA!)**

The Orientation Peer Advisors (OPA!) are ready to take your questions about what it's like to be an engineering student or any other questions you might have. Your peer advisor’s name and email address are listed on the postcard in your orientation packet. You should be receiving a letter or e-mail from your OPA! by the time you arrive on campus but feel free to contact your OPA! – he or she wants to help!
VI. Major Requirements and Recommended First-Semester Courses: Bachelor of Science in Engineering (BSE)

The Bachelor of Science in Engineering (BSE) degree prepares students to practice as professional engineers and computer scientists. The BSE curricula offer a deep set of courses through which the fundamentals of engineering, technology, and design are explored. You will also have broad exposure to math, science, humanities, and social sciences. Below are the recommended courses for the first semester for each major together with contact information for each department should you have any questions regarding your major.

Bioengineering
Undergraduate Chair: Gershon Buchsbaum
Associate Director for Advising: Valerie Dorn
Undergraduate Coordinator: Catherine Lawrence
Department of Bioengineering
210 S. 33rd Street
240 Skirkanich Hall
Philadelphia, PA 19104
Phone: 215-898-8501
Fax: 215-573-2071
Email: beoffice@seas.upenn.edu
Website: http://www.seas.upenn.edu/be/undergrad/

Recommended Courses for the First Semester
- BE 100 (required of all majors)
- MATH 104
- PHYS 140 (pre-med students should register for PHYS 150)
- CHEM 101 (take only section 4 or 5 for engineering students)
- CHEM 053 Lab
- Social Science/Humanities elective (optional, if course load permits)
Recommended Courses for the First Semester

- MATH 104
- CHEM 101 (recommend Section 4 or 5 for engineering students)
- CHEM 053 Lab
- PHYS 140 (pre-med students should register for PHYS 150)
- Writing Requirement or Social Science/Humanities elective
- CBE 150
Computer Engineering
Undergraduate Chair: Andre DeHon
Phone: 215-573-6090

Department of Electrical and Systems Engineering
262 GRW
Philadelphia, PA 19104
Phone: 215-573-6090
Fax: 215-573-2068
Email: dgorte@seas.upenn.edu
Website: http://www.seas.upenn.edu/cmpe/

Recommended Courses for the First Semester
- CIS 110 (or CIS 120 if you have AP credit for CIS 110)
- MATH 104
- PHYS 150
- Writing Requirement Course
- Social Science/Humanities elective
Computer Science
Undergraduate Chair: Amir Roth
Associate Director for Advising: Jackie Caliman
Administrative Assistant: Laura Fox
Department of Computer and Information Science
3330 Walnut Street
Levine Hall
Philadelphia, PA 19104
Phone: 215-898-8560
Fax: 215-898-0587
Email: jackie@cis.upenn.edu
Website: http://www.cis.upenn.edu/ugrad/

Recommended Courses for the First Semester
- CIS 110 (or CIS 120 if you have AP credit for CIS 110)
- MATH 104 (or MATH 114 if you have AP credit for MATH 104)
- CIS 160
- Writing Requirement course
- Social Science/Humanities elective
Digital Media Design
Undergraduate Chair: Norm Badler
Associate Director, DMD Program: Amy Calhoun
Digital Media Design Program
200 S. 33rd Street
170 Moore Building
Philadelphia, PA 19104
Phone: 215-898-1593
Fax: 215-573-7453
Email: cal1@seas.upenn.edu
Website: http://www.dmd.upenn.edu/dmd/

Recommended Courses for the First Semester
- CIS 110 (or CIS 120 if you have AP credit for CIS 110)
- CIS 160
- FNAR 123 or FNAR 264
- Writing Requirement course
- Social Science/Humanities elective
**Electrical Engineering**
Undergraduate Chair: Santosh Venkatesh
Undergraduate Coordinator: Denice Gorte
Department of Electrical and Systems Engineering
200 S. 33rd Street
203 Moore Building
Philadelphia, PA 19104
Phone: 215-898-2771
Fax: 215-573-2068
Email: dgorte@seas.upenn.edu
Website: [http://www.ese.upenn.edu/ugrad/bse.html](http://www.ese.upenn.edu/ugrad/bse.html)

**Recommended Courses for the First Semester**
- CIS 110
- MATH 104
- PHYS 150
- Writing Requirement course
- Social Science/Humanities elective
Materials Science and Engineering
Undergraduate Chair: David Pope
Undergraduate Coordinator: Vicky Lee Truei
Department of Materials Science and Engineering
3231 Walnut Street
Philadelphia, PA 19104
Phone: 215-898-8337
Fax: 215-573-2128
Email: mse-ugrad-info@seas.upenn.edu
Website: http://www.seas.upenn.edu/mse/ugrad/index.html

Recommended Courses for the First Semester
- MATH 104
- CHEM 101 (take only Section 4 or 5 for engineering students)
- CHEM 053 Lab
- PHYS 140
- Writing Requirement course
- Social Science/Humanities elective
Mechanical Engineering and Applied Mechanics
Undergraduate Chair: Haim Bau
Undergraduate Coordinator: Olivia Brubaker
Department of Mechanical Engineering and Applied Mechanics
220 S. 33rd Street
229 Towne Building
Philadelphia, PA 19104
Phone: 215-898-4825
Fax: 215-573-6334
Email: oliviarb@seas.upenn.edu
Website: http://www.me.upenn.edu/prospective-students/undergraduates/majors-minors.php

Recommended Courses for the First Semester
- MEAM 110 (critical to take first semester unless you have AP credit for PHYS 093. If so, take EAS 105 or MEAM 101.)
- MEAM 147 Lab (meets in Towne 143, which is near Skirkanich Hall. Critical to take first semester unless you have AP credit for PHYS 050. If so, take EAS 105 or MEAM 101.)
- MATH 104 (if you have AP credit, take MATH 114)
- CHEM 101 (recommend Section 4 or 5 for engineering students. Recommended, but not essential to take first semester.)
- CHEM 053 Lab (Recommended, but not essential to take first semester.)
- Social Science/Humanities elective
Systems Science and Engineering
Undergraduate Chair: Santosh Venkatesh
Undergraduate Coordinator: Denice Gorte
Department of Electrical and Systems Engineering
200 S. 33rd Street
203 Moore Building
Philadelphia, PA 19104
Phone: 215-898-2771
Fax: 215-573-2068
Email: dgorte@seas.upenn.edu
Website: http://www.ese.upenn.edu/ugrad/bse.html

Recommended Courses for the First Semester
- CIS 110
- MATH 104
- PHYS 150
- Writing Requirement course
- Social Science/Humanities elective
VII. Major Requirements and Recommended First-Semester Courses:: Bachelor of Applied Science (BAS)

The Bachelor of Applied Science (BAS) degree provides a program of study that emphasizes applied science and technology without undertaking a professional engineering practice curriculum found in the BSE degree. The BAS stresses breadth of basic technological concepts and depth in an area pertinent to the career goals of the student.

Below are the recommended courses for the first semester for each major together with contact information for each department should you have any questions regarding your major.

**Applied Science in Biomedical Science**
Undergraduate Chair: Gershon Buchsbaum
Associate Director for Advising: Valerie Dorn
Undergraduate Coordinator: Catherine Lawrence
Department of Bioengineering
210 S. 33rd Street
240 Skirkanich Hall
Philadelphia, PA 19104
Phone: 215-898-8501
Fax: 215-573-2071
Email: beoffice@seas.upenn.edu
Website: [http://www.seas.upenn.edu/be/undergrad/](http://www.seas.upenn.edu/be/undergrad/)

**Recommended Courses for the First Semester**
- BE 100 (required for all majors)
- MATH 104
- PHYS 140 (pre-med students should register for PHYS 150)
- CHEM 101 (take Section 4 or 5 only)
- CHEM 053 Lab
- Social Science/Humanities elective (optional, if course load permits)
Applied Science in Computer Science, or
Applied Science in Computational Biology, or
Applied Science in Computer and Cognitive Science

Undergraduate Chair: Amir Roth
Associate Director for Advising: Jackie Caliman
Administrative Assistant: Laura Fox
Department of Computer and Information Science
3330 Walnut Street
Levine Hall
Philadelphia, PA 19104
Phone: 215-898-8560
Fax: 215-898-0587
Email: jackie@cis.upenn.edu
Website: http://www.cis.upenn.edu/ugrad/

Recommended Courses for the First Semester
- CIS 110 (or CIS 120 if you have AP credit for CIS 110)
- CIS 160
- MATH 104
- Writing Requirement course
- Social Science/Humanities elective
VIII. Major Requirements: Curriculum Deferred (CD)

Freshmen who do not initially choose a specific major when applying to Penn are designated “Curriculum Deferred” (CD). Many first year students are CD, so you shouldn’t feel as though you are the exception. Since you are not required to declare your Engineering major until the end of your first year, you have time to learn about each department. During New Student Orientation and throughout the fall semester, the Office of Academic Programs (APO) and the academic departments organize events to give you several opportunities to explore degree options.

All Curriculum Deferred students are required to take a 100-level engineering course during their freshman year in either the Fall or the Spring semester.

Students who declare their major by the end of the Fall 2009 semester will not be required to take a 100-level engineering course.

Curriculum Deferred
Faculty Advisors for CD Students: John Keenan, David Pope
Office of Academic Programs
111 Towne Building
220 S. 33rd Street
Philadelphia, PA 19104-6391
Phone: 215-898-7246
Fax: 215-573-5577
Email: cdadvise@seas.upenn.edu

Recommended First Semester Courses for CD Students
- Any 100-level engineering course (see below for complete list of 100-level Engineering courses)
- MATH 104
- PHYS 150 (with lab) or PHYS 140 (no lab)
- CHEM 101 (recommend Section 4 or 5 for engineering students)
- CHEM 053 Lab
- Writing Requirement course or Social Science and Humanities elective

All Curriculum Deferred students are required to take one of the 100-level engineering courses listed below. If you are leaning towards a particular major, you are recommended to take the 100-level course of that major and follow the recommended courses for the first semester for that major. See the table of Recommended Courses for the First Semester for All Majors below for more information.
<table>
<thead>
<tr>
<th>Major Interest</th>
<th>Course Number</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview of Engineering</td>
<td>EAS 101</td>
<td>Introduction to Engineering (highly recommended for undecided students)</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>BE 100</td>
<td>Introduction to Bioengineering</td>
</tr>
<tr>
<td>Chemical and Biomolecular Engineering</td>
<td>CBE 150</td>
<td>Fundamentals of Biotechnology</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>CIS 110</td>
<td>Introduction to Programming or Introduction to Electrical and Systems Engineering</td>
</tr>
<tr>
<td>Computer Science</td>
<td>CIS 110 or</td>
<td>Introduction to Programming or Programming Languages and Techniques I (if you have AP credit for CIS 110) and Mathematical Foundations of Computer Science</td>
</tr>
<tr>
<td></td>
<td>CIS 120 and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIS 160</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>CIS 110</td>
<td>Introduction to Electrical and Systems Engineering</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>EAS 210</td>
<td>Introduction to Nanotechnology and Engineering (spring semester only)</td>
</tr>
<tr>
<td>Mechanical Engineering and Applied Mechanics</td>
<td>MEAM 110/147</td>
<td>Introduction to Mechanics/Lab (Instead of PHYS 150) and Introduction to Mechanical Design or Introduction to Scientific Computation</td>
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<tr>
<td></td>
<td>and MEAM 101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or EAS 105</td>
<td></td>
</tr>
<tr>
<td>Systems Engineering</td>
<td>CIS 110</td>
<td>Introduction to Electrical and Systems Engineering and Systems Engineering</td>
</tr>
</tbody>
</table>
IX. Specialized Dual-Degree Programs

Specialized dual-degree programs link the Engineering degree programs with another degree program in one of the other three undergraduate schools at Penn. Specialized dual-degree students may choose either the BAS or the BSE. Both degree programs require a minimum combined total of 46 course units of work. The options are limitless, and we urge you to explore any interests you may have. If you have any questions about these programs, an advisor in the Office of Academic Programs will be able to help you.

The Jerome Fisher Program in Management and Technology (M&T)

Program Director: William F. Hamilton
Program Assistant: Jaime Davis
The Jerome Fisher Program in Management & Technology
3537 Locust Walk
Suite 100
Philadelphia, PA 19104
Phone: 215-898-4145
Fax: 215-573-2093
Email: mgtech@seas.upenn.edu
Website: http://www.upenn.edu/isher/

Students in the M&T Program earn a Bachelor of Science in Economics from the Wharton School (BS) and a BSE or a BAS from Penn Engineering. Students are admitted to the program in the first year. However, a few additional spots are held for internal transfer into the program at the beginning of the second year. Through the admission process, you have been designated to enter Penn Engineering as a BSE-Curriculum Deferred (CD) student. However, during the summer, if you already know which major you wish to pursue, please email the following information, with “Major Correction” as the subject, to apo@seas.upenn.edu:

1. Full Name
2. 8-Digit Penn ID Number
3. Correct Engineering Major

The deadline to change/declare a major is Friday, July 31, 2009. Please follow these recommendations:

Recommended Courses for the First Semester for M&T:

- MGMT 100
- MATH 104
- ECON 010
- any Engineering introductory course (see table, next page)
- science (see table, next page)
If you have declared an engineering major or you are leaning towards a particular major, you are recommended to take the 100-level course of that major and ONE appropriate science course for that major:

<table>
<thead>
<tr>
<th>Major Interest</th>
<th>Course Number and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum Deferred</td>
<td>- EAS 101: Introduction to Engineering (highly recommended for undecided students)</td>
</tr>
<tr>
<td></td>
<td>- PHYS 140</td>
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<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>- CHEM 101 (recommend Section 4 or 5 for engineering students) and</td>
</tr>
<tr>
<td></td>
<td>- CHEM 053 Lab</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>- BE 100: Introduction to Bioengineering</td>
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<td></td>
<td>- PHYS 140 (pre-med students should register for PHYS 150) or</td>
</tr>
<tr>
<td></td>
<td>- CHEM 101 (recommend Section 4 or 5 for engineering students) and</td>
</tr>
<tr>
<td></td>
<td>- CHEM 053 Lab</td>
</tr>
<tr>
<td>Chemical and Biomolecular Engineering</td>
<td>- CBE 150: Fundamentals of Biotechnology</td>
</tr>
<tr>
<td></td>
<td>- CHEM 101 (recommend Section 4 or 5 for engineering students) and</td>
</tr>
<tr>
<td></td>
<td>- CHEM 053 Lab</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>- CIS 110: Introduction to Programming</td>
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<td>or</td>
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<tr>
<td></td>
<td>- CIS 120: Programming Languages and Techniques I (if you have AP Credit for CIS 110)</td>
</tr>
<tr>
<td></td>
<td>- PHYS 150</td>
</tr>
<tr>
<td>Computer Science</td>
<td>- CIS 110: Introduction to Programming</td>
</tr>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>- CIS 120: Programming Languages and Techniques I (if you have AP CIS 110 credit)</td>
</tr>
<tr>
<td></td>
<td>- PHYS 150</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>- CIS 110: Introduction to Programming</td>
</tr>
<tr>
<td></td>
<td>- PHYS 150</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>- EAS 210: Introduction to Nanotechnology and Engineering (Spring semester only)</td>
</tr>
<tr>
<td></td>
<td>- PHYS 140</td>
</tr>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>- CHEM 101 (recommend Section 4 or 5 for engineering students) and</td>
</tr>
<tr>
<td></td>
<td>- CHEM 053 Lab</td>
</tr>
<tr>
<td>Mechanical Engineering and Applied Mechanics</td>
<td>- MEAM 110/147: Introduction to Mechanics/Lab and</td>
</tr>
<tr>
<td></td>
<td>- MEAM 101 Intro to Mechanical Design</td>
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<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>- EAS 105 Intro to Scientific Computation</td>
</tr>
<tr>
<td>Systems Engineering</td>
<td>- CIS 110: Introduction to Programming</td>
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<tr>
<td></td>
<td>- PHYS 150</td>
</tr>
</tbody>
</table>

For engineering advising over the summer, please contact Dr. John Keenan at keenan@seas.upenn.edu.
Computer and Cognitive Science Program (CCS)

Students in the Computer and Cognitive Science (CCS) Program earn a BA in Psychology, Philosophy, Mathematics, or Linguistics from the College of Arts and Sciences and a BAS or BSE in Computer Science from the School of Engineering and Applied Science. Please follow the recommended courses below:

**Recommended Courses for the First Semester for CCS:**

- CIS 110 (or CIS 120 if you have AP credit for CIS 110)
- CIS 160
- MATH 104
- choose two of three:
  - Writing Requirement course
  - Foreign language requirement course
  - General Requirement course

Please keep in mind that you should choose your courses to satisfy the requirements of both schools.

For assistance this summer, contact Ms. Jackie Caliman at 215-898-5326 or via email jackie@cis.upenn.edu.

Liberal Studies and Technology Program (L&T)

Students in this program will earn a BA degree from the College of Arts and Sciences and a BAS or BSE degree from Penn Engineering. You are free to choose any major in the College and in the Engineering School. You will enter Penn Engineering as a BSE-CD student. For guidance this summer in selecting courses for the fall semester, please contact any of the advisors in the Office of Academic Programs. You should also contact an Assistant Dean for Advising in the College of Arts and Sciences at 215-898-6341.

X. Requirements of the Curricula

The Penn Engineering Undergraduate Handbook can be found online. This site is extremely helpful and you will use it frequently.

Each Bachelor of Science in Engineering (BSE) and Bachelor of Applied Science (BAS) curriculum has six categories of requirements:

- Math
- Science
- Engineering
- Technical Electives/Application Focus/Career Path/Concentration (please refer to the Worksheet of your intended major)
- Social Science and Humanities/Technology in Business and Society (SSH/TBS),
- Free Electives

Courses that satisfy the respective requirements may be found in the online Undergraduate Handbook under each category. Please note that certain courses change from year to year.

Each BSE and BAS curriculum has a Worksheet. An online version of the Worksheet for your major is found on Penn-In-Touch. The Worksheet is a kind of “blueprint” or road map of your requirements as well as a planning tool for the next four years. During the departmental meeting and meeting with your Faculty Advisor and UG Chair, you will receive additional information about these Worksheets and information about using your Worksheet. Additionally, procedures for changing your curriculum and other information related to your curriculum requirements and the School’s rules, regulations, and procedures will be discussed during New Student Orientation.
The Engineering Writing Requirement
The Writing Requirement differs somewhat between each of the four undergraduate schools at Penn. For SEAS students, the requirement can be found in the online handbook. All of the courses listed in the “Writing Program” booklet will satisfy the Penn Engineering Writing Requirement and are also counted as Social Science or Humanities distribution requirements.

No credit list
SEAS undergraduates may not use courses on this list toward their degree:
- Astro 1
- CIS (CSE) 100/101
- Education (inter-session courses)
- Math 170, 312 (Between Spring, 1999 and Spring, 2006)
- MCIT courses
- Military Science
- Naval Science (except 102, 201, 202, 401)
- Organizational Dynamics
- Physics below 140 except PHYS 050, 051
- Statistics (below 430 except STAT 111)
- Wharton evening courses and Wharton 4XX courses

XI. Engineering and Campus Resources

Other Links of Interest

Student Activities
Learn about ways to get involved in student clubs and organizations in Penn Engineering: http://www.seas.upenn.edu/undergraduate/student-life/index.php. You can also see the variety of student activities for the past academic year on SEAS Weekly Online.

Advancing Women in Engineering (AWE) Program
Started in Fall of 2007, the Advancing Women in Engineering (AWE) program is dedicated to recruiting, retaining, and promoting women in Penn Engineering. Through our programs and events we hope to increase the number of women interested in studying engineering, enhance the overall academic experience of female students, and create social and networking opportunities for women in engineering. Have an idea, or a question about AWE? Contact Michele Grab, AWE Director, at mgrab@seas.upenn.edu or 215-573-6487. For more information see the AWE website at http://www.seas.upenn.edu/awe.

Technical Communication Program (TCP) Program
The Technical Communication Program (TCP) is a SEAS program created to support students with their technical writing and oral presentation skills. This support is available from Technical Communication Fellows, who are trained to help fellow students revise papers or practice oral presentations. To set up an appointment to work with a Fellow, contact Mary Westervelt, TCP Director, at mwestervelt@seas.upenn.edu. For more information, see the TCP website: http://www.seas.upenn.edu/~tcp.

Engineering Library
The Engineering Library is located on the second floor of Towne. The library offers a variety of services and workshops that are specifically geared towards helping engineering students. You can learn more about the Engineering Library by visiting http://www.library.upenn.edu/scitech/.

Weingarten Learning Resources Center
Office of Learning Resources: Learning Resources provides professional instruction in university-relevant skills such as academic reading, writing and study strategies. You can consult with a Learning
Instructor on the most effective and efficient ways to study for various courses. In addition, the learning strategies and study habits that you develop as an undergraduate will continue to benefit you throughout your life.

Office of Student Disabilities Services: The University of Pennsylvania is committed to providing equal educational opportunities for all students, including students with disabilities. The Office of Student Disabilities Services (SDS) provides comprehensive, professional services and programs for students with disabilities to ensure equal academic opportunities and participation in University-sponsored programs.
3702 Spruce Street
Philadelphia PA 19104-6027
215-573-9235 (Voice), 215-746-6320 (TDD), 215-746-6326 (Fax)
http://www.vpul.upenn.edu/lrc/

The Tutoring Center
The Tutoring Center offers Penn students a variety of peer-tutoring services. All Tutoring Center services are free for matriculated undergraduates. Tutorials are generally offered for the core introductory and intermediate undergraduate courses at Satellite Tutoring Centers for one-hour, one-on-one sessions or through private tutoring requests for courses not offered at the Satellite Tutoring Centers. For more information, visit http://www.vpul.upenn.edu/tutoring/

Career Services
Career Services works with all Penn undergraduates, and most of the University’s graduate and professional students. We help students and alumni define their career goals, and take the steps necessary to achieve them. Please explore our site, attend our programs, and most importantly, visit our office. You will find a wonderful Career Library, and outstanding counselors and other staff members who can help you. http://www.vpul.upenn.edu/careerservices/seas/
XII. Penn Engineering Contact Information

Undergraduate Chairs & Coordinators
Each degree program is managed through an Undergraduate Department Chairperson. The Chair is assisted by an Undergraduate Coordinator, who is the first point of contact for questions about a program or major.

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>OVERSIGHT FOR DEGREES IN:</th>
<th>CHAIR</th>
<th>COORDINATOR</th>
</tr>
</thead>
</table>
| Bioengineering (BE) | • Bioengineering BSE  
• Biomedical Science BAS | Gershon Buchsbaum  
240 Skirkanich  
215-898-8501 | Catherine Lawrence  
240 Skirkanich  
215-898-8501 or  
215-746-8605 |
| Chemical and Biomolecular Engineering (CBE) | • Chemical and Biomolecular Engineering BSE | Wen Shieh  
347 Towne  
215-898-4634 | Meghan Godfrey  
311A Towne  
215-898-8351 |
| Computer and Information Science (CIS) | • Computer Science and Engineering BSE  
• Digital Media Design BSE  
• Computer Science BAS  
• Cognitive Science BAS  
• Computational Biology BAS | Amir Roth  
603 Levine  
215-573-0175 | Jackie Caliman  
308 Levine  
215-898-5326 |
| Electrical and Systems Engineering (ESE) | • Electrical Engineering BSE  
• Systems Science & Engineering BSE  
• Computer & Telecommunications BSE | Santosh Venkatesh  
362 Moore  
215-898-9493 | Denice Gorte  
203 Moore  
215-898-2771 |
| Mechanical Engineering and Applied Mechanics (MEAM) | • Mechanical Engineering and Applied Mechanics BSE | Haim Bau  
237 Towne  
215-898-8363 | Olivia Brubaker  
229 Towne  
215-898-4825 |
| Materials Science and Engineering (MSE) | • Materials Science and Engineering BSE | David Pope  
206 LRSM  
215-898-9837 | Vicky Truei  
201 LRSM  
215-898-8337 |
| Program | OVERSIGHT FOR DEGREES IN: | CHAIR | COORDINATOR |
| Computer Engineering (CMPE) | • Computer Engineering BSE | Andre DeHon  
262 Moore GRW  
215-570-6090 | Denice Gorte  
203 Moore Building  
215-898-2771 |
| Market and Social Systems Engineering (MKSE) | • Market and Social Systems Engineering BSE | Zachary Ives  
576 Levine  
215-746-2789 | TBD |

If you are pursuing an individualized BAS, it is managed through the home department of your faculty advisor. For general questions, you can email Sonya Gwak in the Academic Programs Office.