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What is Biomedical Engineering?

(Note that *bioEngineering* and *Biomedical Engineering* are terms that have been used almost interchangeably, although *Biomedical Engineering* implies a stronger focus on human health applications and is the name of OSU's new Department, established in 2006):

During the past 25 years, Biomedical Engineering has become accepted as an important field of interdisciplinary study and research. The growth of the field was especially rapid in the late 1980's and early 1990's, and in July 1997 the National Institutes of Health issued a working definition of Biomedical Engineering:

"The discipline of Biomedical Engineering lies at the forefront of the medical revolution. Advances in Biomedical Engineering are accomplished through interdisciplinary activities that integrate the physical, chemical, mathematical, and computational sciences with Engineering principles in order to study biology, medicine, and behavior."

Undergraduate Program Objectives

The objective of our Biomedical Engineering undergraduate program is to provide educational opportunities for students to creatively integrate Engineering and life sciences so that graduates can successfully pursue:

- Advanced study leading to research or professional practice in Biomedical Engineering
- Advanced study leading to research or professional practice in health care
- Careers in Biomedical Engineering industries or related technical and professional fields.

We will help students prepare for these career paths by making clear what steps are needed prior to graduation to enable later successes.

- Students planning to go to graduate school are advised to pursue opportunities for independent research projects (e.g., honors thesis), advised about planning the sequence of Professional Elective courses based on anticipated future studies, and kept informed about the GRE process.
- Students planning to attend medical school need to take a specific organic chemistry sequence and will be kept informed about the MCAT process.
- Students planning to go directly to the job market are strongly advised to work closely with Engineering Career Services and aggressively seek summer internship opportunities. They will receive advice about focusing Professional Electives to develop areas of concentration attractive to potential employers.

Advising in Biomedical Engineering

Students in the department of Biomedical Engineering enjoy a strong advising team comprised of faculty and two staff members dedicated to academic advising.

Role of Faculty

Faculty in the department play the role of content-specific advisors. Each of our faculty is conducting world class research in a variety of areas. Their role is to help students choose appropriate areas of interest and advise on domain and professional Engineering elective courses to take. Students should feel free to contact professors to pick their brains about their research area, Engineering elective work, conducting undergraduate research and industry positions available in their fields.

Academic Advisors

Cory Matyas, Coordinator of Academic Advisement
273 Bevis Hall; 614-292-2154
bmeadvisor@osu.edu
MAJOR students only

Lindsay Tolchin, Academic Advisor
270c Bevis Hall; 614-292-4557
tolchin.6@osu.edu
PRE-MAJOR/PROSPECTIVE students

Cory's and Lindsay's roles in advising can be summed up in the following statements:

- *Counsel* students regarding which courses to take, career goals, progress toward successful completion of degree, course schedules and study habits.
- *Inform* students of degree requirements, resources for study, and additional campus resources
- *Keep Records* (advising transcripts, logs, notes, degree progress checklists)
- *Act as an Advocate* for students
- *Refer* a student to a person or office when student's needs extend beyond the reach of her professional expertise; adjustment problems, assessing learning disabilities, personal crises, grievances, career placement.

Cory and Lindsay encourage all students to visit them often with any questions, comments, or concerns. Their doors are always open!

Curricular Information

**Bingo Sheets,
Domain/Eng Elective Courses,
Internship Schedules, Undergraduate
Research**

Name: _____ OSU ID: _____ OSU Admit Term: _____

Phone: _____ Email (*name.number@osu.edu*): _____

Suggested Curriculum

This should be used as a **guide** only. Semester offerings are subject to change.

Year	Autumn	Spring
1	___ CHEM 1210 (<i>Gen Chem 1</i>) 5 hr ___ MATH 1151 (<i>Calculus 1</i>) 5 hr ___ ENGR 1181 (<i>Fundamentals of ENGR 1</i>) 2 hr ___ ENGR 1100 (<i>Engineering Survey</i>) 1 hr ___ General Education 3 hr	___ CHEM 1220 (<i>Gen Chem 2</i>) 5 hr ___ MATH 1172 (<i>Engineering Math A</i>) 5 hr ___ ENGR 1182 (<i>Fundamentals of ENGR 2</i>) 2 hr ___ PHYSICS 1250 (<i>Mechanics, Thermal, Waves</i>).. 5 hr
2	___ MATH 2177 (<i>Ord & Part Diff Eq</i>) 4 hr ___ MATSCEN 2010 (<i>Intro to Engr Materials</i>)... 3 hr ___ BIOLOGY 1113 (<i>Gen Biology</i>) 4 hr ___ BIOMEDE 2000 (<i>Intro to BME</i>) 3 hr ___ MECHENG 2040 (<i>Statics/Strength of Materials</i>) 4 hr	___ CHEM 2310 (<i>Intro to Organic Chem</i>) 4 hr ___ PHYSICS 1251 (<i>E&M, Optics, Modern Phys</i>).. 5 hr ___ MECHENG 3500 (<i>Fluid, Thermo, Heat</i>) 3 hr ___ ANATOMY 2220 (<i>Physio/Anat Lab</i>) 4 hr ___ BIOMEDE 2700 (<i>Num Simulation in BME</i>) 2 hr
3	___ STAT 3460 (<i>Prob and Stat 1</i>) 3 hr ___ BIOCHEM 4511 (<i>Biochemistry</i>) 4 hr ___ EEOB 3510 (<i>Animal Cell & Develop</i>) 3 hr ___ † BIOMEDE 4X10 (<i>Domains 1,2</i>) 3-6 hr ___ †† BIOMEDE 471X (<i>Domain Lab</i>)5-1.0 hr	___ BIOMEDE 3702 (<i>Meas & Instrum Lab</i>) 2 hr ___ BIOMEDE 3703 (<i>Quantitative Physiol</i>) 3 hr ___ † BIOMEDE 4X10 (<i>Domain 2,3</i>) 3-6 hr ___ †† BIOMEDE 471X (<i>Domain Lab</i>)5-1.0hr ___ General Education 3 hr ___ General Education 3 hr
4	___ BIOMEDE 4901 (<i>Design 1</i>) 3 hr ___ BIOMEDE 4900 (<i>Prof Development</i>) 1 hr ___ Technical Elective 1 3 hr ___ General Education 3 hr ___ General Education 3 hr	___ BIOMEDE 4902 (<i>Design 2</i>) 3 hr ___ Technical Elective 2 3 hr ___ BIOMEDE 5XXX (<i>Upper-Level BME Course</i>) 3 hr ___ General Education 3 hr ___ General Education 3 hr ___ General Education 3 hr

Total Hours to complete the degree program = 131.5

Program Options

†Domain Options (TAKE THREE)

- BIOMEDE 4110 (*Bioimaging*)
- BIOMEDE 4210 (*Biotransport*)
- BIOMEDE 4310 (*Biomaterials*)
- BIOMEDE 4410 (*Biomechanics*)
- BIOMEDE 4510 (*Molecular, Cellular, & Tissue Eng*)
- BIOMEDE 4610 (*Biomedical Micro-/Nano-Tech*)

††Domain Labs

- BIOMEDE 4711 (*Bioimaging Lab*)
- BIOMEDE 4712 (*Biotransport Lab*)
- BIOMEDE 4713 (*Biomaterials Lab*)
- BIOMEDE 4714 (*Biomechanics Lab*)
- BIOMEDE 4715 (*Molecular, Cellular, & Tissue Eng Lab*)
- BIOMEDE 4716 (*Biomedical Micro-/Nano-Tech Lab*)

Acceptance Criteria

Acceptance into the Biomedical Engineering major is limited and will depend on the outcome of application process that includes information about cumulative point-hour ratio (CPHR) upon completion of the following pre-major courses: Chem 1210/1220; Math 1151/1172; Physics 1250; ENGR 1181/1182; essay. Students are accepted into the major during Spring Term.

Technical and Other electives

Must be courses in the College of Engineering, at the 3000-level or higher (unless previously approved below 3000-level)

Technical Elective 1

Technical Elective 2

Must be in Department of Biomedical Engineering at 5000-level

BIOMEDE 5XXX

General Education Requirement

Writing and Communication

English 1110.xx 3 hr

Second Writing Course 3 hr

Social Science

Only one course per Social Science group may count.

3 hr

3 hr

Literature

3 hr

Visual and Performing Arts

3 hr

Historical Study

3 hr

Second Historical Study or Cultures and Ideas

3 hr

Social Diversity in the U.S. or Global Diversity

Course may overlap with another general education category.

0 / 3 hr

Ethics

Ethics courses listed below may overlap with their corresponding general education category.

Social Science, Individual & Groups sub-category: Economics 3048.

Social Science, any sub-category: Sociology 3302..

Cultures & Ideas: Comparative Studies 2341, Philosophy 1332, 1337.

0 / 3 hr

Foreign Language

Pre-approved substitutions

- A. Completion by enrollment in a foreign language sequence through 1103, or enrollment in a foreign language course with a prerequisite of 1103, can be substituted for one general education course in Cultures and Ideas.
- B. Completion of a foreign language minor can be substituted for two general education courses, one in Social Science groups A or B, and one in Cultures and Ideas.

University Capstone (Cross-Disciplinary Seminar)

Pre-approved substitutions

Completion of a Social Science 3597 or 4597 can be substituted for a Social Science general education course in any group. Completion of an Arts & Humanities 3597 or 4597 can be substituted for a Visual/Performing Arts general education course.

A list of approved general education courses can be found at Engineering.osu.edu/major

Information for Pre-Majors and Undecided Students

Upon enrollment, first-year students are encouraged to indicate their interest in Biomedical Engineering. The first-year Engineering curriculum provides students the opportunity to explore different Engineering disciplines. If you entered Ohio State with a major other than Engineering Undeclared with an interest area in Biomedical Engineering, please contact Lindsay Tolchin (Tolchin.6@osu.edu) to schedule an appointment to talk about changing majors and getting information regarding your course schedule and application to major.

All pre-Biomedical Engineers are encouraged to meet with Lindsay, the pre-major academic advisor in the Biomedical Engineering Department, for information about course requirements and department admissions.

First Year Coursework

Courses required for the first year of study for pre-Biomedical Engineers are:

Math – 1151 and 1172

Chemistry – 1210 and 1220

Physics – Physics 1250 (FEH Physics 1260)

Engineering – 1181 and 1182 (FEH Engineering 1281 and 1282)

Please note: Admission to the Biomedical Engineering program requires that you have received credit for all of the courses listed above. **** *In addition, the first BME major course offered fall semester of the 2nd year (BME 2000) has the following additional co-requisite courses: Math 2177, Bio 1113, and ME 2040. ******

The following is a recommended schedule for the first year:

Autumn Semester	Spring Semester
Math 1151 (Calc & Analy Geo) Chem. 1210 (Gen Chem.) Engr 1181 (Intro to Engr I) Engr 1100 (Engr Survey) General Education	Math 1172 (Calc & Analyc Geom) Chem. 1220 (Gen Chem) Engr 1182 (Intro to Engr II) Physics 1250 (Mech,Wave,Therm)

The FEH Program and Biomedical Engineering

Biomedical Engineering suggests the following schedule for students interested in the Fundamentals of Engineering for Honors (FEH) program:

Autumn Semester	Spring Semester
Math 1151 (Calc & Analy Geo) Chem. 1210 (Gen Chem.) Engr 1281(Intro to Engr I) Engr 1100 (Engr Survey) General Education	Math 1172 (Calc & Analyc Geom) Chem. 1220 (Gen Chem) Engr 1282 (Intro to Engr II) Physics 1250 (Mech,Wave,Therm)

Applying to the Biomedical Engineering Program

Students must formally apply for admission to the Biomedical Engineering major. The application is available on the department webpage.

**** Admission to the BME major is done only once a year. For consideration, have your application turned in before the end of spring semester.****

The minimum course requirements for admission are:

- Completion of Math 1151 and 1172
- Completion of Chemistry 1210 and 1220
- Completion of Physics 1250
- Completion of Engineering 1181 and 1182

While we do not have a specific GPA requirement, our admissions are competitive. Our admissions are capped, and we are fully populated with up to 80 students per class year. We use a holistic approach that considers cognitive (e.g., GPA) and non-cognitive (e.g., leadership, activities, special considerations, diversity) factors.

Curriculum

The curriculum follows a standard first-year Engineering sequence of mathematics, sciences (including chemistry, physics), general education, and introductory Engineering courses. These topics have follow-up courses during the second year, and expand to include life sciences (biology, organic chemistry) as well as Engineering sciences and initial Biomedical Engineering courses. Life sciences and Engineering sciences continue in the 3rd year, but the focus is upon Biomedical Engineering with Biomedical measurement and techniques labs, and the “domain” courses. Each of the six domain courses (students are required to take at least 3) are intended to build on previous Engineering and life sciences courses to truly integrate Engineering and medicine content. Pedagogically similar (each domain course emphasizes creativity, technical communication, in silico modeling and simulation, hands-on experiments) the domain courses are pathways to advanced Biomedical Engineering courses and research. The 4th year has three distinctive features: a requirement for students to take an advanced-level BME courses as a follow-up to one of the domain classes; an individually designed and approved 2-course sequence of professional Engineering electives (allowing for students to pursue independent research projects, honors theses, additional upper-level BME classes or other Engineering courses); and the two-semester team design project. These design projects will be based on student Engineering teams with 4-5 members who will work with a specific disabled client from the local community. For these real-world, open-ended experiences, students will determine what is needed and will work to design and construct a device to meet their client’s needs, with a public show of the designs in the Spring of the Senior year.

Candidates for the degree Bachelor of Science in Biomedical Engineering will generally need to take overloads to pursue pre-professional options and satisfy the requirements for pre-medical, pre-dental, pre-veterinary, or pre-optometry programs by taking the appropriate electives. In order to fit with the BME sequencing, some pre-professional options may require extra courses in the summer.

Domains

- Bioimaging
- Biomaterials
- Biomechanics
- Biotransport
- Micro-/Nano-Biotechnologies
- Molecular, Cellular, and Tissue Engineering

Following the domain courses, Biomedical Engineering requires an advanced-level (5XXX) follow-up course (enabling focus and in-depth) that has a domain course as the pre-requisite.

GE Requirements

The General Education (GE) courses are a body of courses designed to ensure that each student becomes acquainted with the basic areas of academic study. To meet the Engineering GE requirements, not included by required coursework, credit hours must be completed from the following six areas of academic study: writing and related skills, social/global diversity in the United States, ethics, social sciences, history, and arts and humanities. A list of coursework that meets these requirements is on the following pages. The College is continually updating the list of coursework to meet GE requirements. Students are encouraged to view an up-to-date listing of qualifying course to meet GE requirements by visiting the College of Engineering website or visiting with their academic advisor. *Note that GE requirements do vary by College and by program within the College.*

Please note that Engineering students entering the University prior to Summer 2007 have much different GEC requirements. Please contact Cory or Lindsay if you arrived at the University prior to Summer 2007 and need information on the GEC requirements.

GE Requirements

Writing and Related Skills

Students must complete English 1110 and a second writing course.

Social Sciences (6 hrs, no more than one from a group)

- A. Individuals and Groups
- B. Organizations and Politics
- C. Human, Natural, & Economic Resources

Arts & Humanities (6 hrs, no more than one from a group)

- A. Literature
- B. Visual/Performing Arts

Historical Study (3 hrs)

Additional Historical Study or Cultures and Ideas (3 hrs)

Students may choose between taking an additional History class or an additional class from the Cultures and Ideas category.

Ethics (3 hrs selected from either Ethics Gp I or II)

- A. Ethics Group I (Counts as a Social Science Course)
 - Sociology 3302

- Economics 3048
- B. Ethics Group II (Counts as an Cultures and Ideas Course)
- Philosophy 1332, 1337
 - Comparative Studies 2341

Social or Global Diversity Course

Students must complete one GE as a social or global diversity course. Students should NOT take an extra course, but should use one of their existing courses to meet this requirement. All courses listed on the GE list that are underlined meet the diversity requirement.

Foreign Language (Waived)

Advanced study may be used for substitution for other GE courses.

A. The completion of a foreign language sequence through the 1103 level can be substituted for one (3 hour) GE course requirement from the category of Cultures and Ideas. A student receiving advanced placement through the 1103 level must take a minimum of one foreign language course with a prerequisite of 1103 to receive this GE credit.

B. The completion of a minor within a foreign language department (which includes the completion of a language through 1103) can be substituted for two (3 hours each) GE courses. One course would be from the category of Cultures and Ideas. The second course would be from the Social Sciences categories of Individuals and Groups or Organizations and Politics. This two course substitution is not in addition to the substitution discussed above.

Using your Degree Audit

The degree audit (DARS) is the single most powerful tool in checking progress towards your degree. You can access your degree audit 24/7 and it provides detailed information on which course requirements you are missing. It is particularly useful in checking your GE progress. You can also use the same tool to download any transfer credit reports that you might have.

To access your DARS, go to Buckeyelink and click on "Degree Audit" and log in. Choose to run your default program. If there is no default program chosen or you want to check your progress towards another degree, use the "Run Selected Program" option. Choose College, Major, Degree, etc...

Click "Submit audit." After a few minutes you will have a checklist of requirements. Green checks mean you have completed or are in progress of completing a requirement. Big red X's mean that the requirement has not been met.

You should make a habit of checking your degree audit at the very least each spring BEFORE you register for fall semester courses! It is preferred that you check after you schedule courses each term to make sure that the courses you have registered for are meeting the requirements you thought they were. As usual, if you notice something off on your degree audit you should check with Cory or Lindsay as soon as possible.

Pre-Health Coursework Requirements

An undergraduate degree in Biomedical Engineering provides excellent preparation for students interested in continuing their education beyond the B.S. degree to eventually work in health-related professions.

The following courses are required for pre-med:

1 year of Chemistry (required for BME)
Chem 1210, Chem 1220

1 year of Physics (required for BME)
Physics 1250, Physics 1251

1 year of Biology (parts required for BME)
Bio 1113, Bio 1114

1 year Organic Chemistry, with Lab (parts required for BME)
Chem 2510 (in place of Chem 2310), Chem 2520, Chem 2540, Chem 2550

Biochemistry (required for BME)
Biochem 4511

Anatomy (required for BME)
Anat 2220

Required courses for BME:	Required courses for Pre-Med:
1 year of Chemistry Chem 1210, Chem 1220	1 year of Chemistry Chem 1210, Chem 1220
1 year of Physics Physics 1250, Physics 1251	1 year of Physics Physics 1250, Physics 1251
1 semester of Biology Biology 1113	1 year of Biology Biology 1113, Biology 1114
1 semester of Organic Chemistry for Engineers Chem 2310	1 year of Organic Chemistry with Lab Chem 2510, Chem 2520, Chem 2540, Chem 2550
1 semester of Biochemistry Biochem 4511	1 semester of Biochemistry Biochem 4511
1 semester of Anatomy Anat 2220	1 semester of Anatomy Anat 2220

Beyond the challenge of the additional hours, sequencing the courses to stay on track with the BME curriculum and to be ready for the MCAT test will likely require summer courses.

In addition to knowing the course requirements, above, pre-medical students are strongly encouraged to consult with the pre-health advising program (<http://preprofessional.osu.edu/health/>), and the OSU School of Medicine web site (<http://medicine.osu.edu/futurestudents/admissions>) (see, for example, the PDF file "Preparing for Med School.")

If you are interested in pursuing pre-med (or other pre-health profession), contact Cory Matyas (bmeadvisor@osu.edu) or Lindsay Tolchin (Tolchin.6@osu.edu) as soon as possible to set up a reasonable course schedule. It is important that you plan well from the start to not only complete the requisite coursework, but also work in time to complete the extracurricular requirements necessary for a strong professional school application.

Undergraduate Research

Research exposes you to a very different side of science and Engineering. In courses you solve “textbook problems” – you develop your Engineering skills by analyzing and solving problems for which the solution is already known. In contrast, a research project involves working on “open-ended” problems – working at the leading edge of an area on problems that no one knows the answers to yet, and in some cases for which the problem itself has not yet been well defined.

There are many opportunities for undergraduates to complete research in the Biomedical Engineering department. Under the direction of a faculty member, students work on a research problem that may involve laboratory work, computer programming and data analysis, and literature searching. This provides students with experience solving open-ended research problems and is ideal for students who enjoy working in the lab or on the computer. Students interested in graduate school are strongly encouraged to consider doing undergraduate research.

In the past, research projects by Engineering undergraduates have led to some great accomplishments. Students have had their work published in technical journals, attended and presented their work at national conferences, and presented their research at Ohio State’s annual Denman Undergraduate Research Forum and garnered top prizes.

If you are interested in completing undergraduate research, here are a couple steps to get you started:

1. The first thing you should do is a bit of research of your own. Consult the faculty web pages and resource groups listing to see which professors you would like to work with on their particular research projects.
2. Contact the professor(s) directly that you are interested in working with to inquire about research opportunities. To be best prepared you should be able to indicate an area of their research that you would like to work on. This will give the faculty a better idea of what projects you may be available for. Attach a resume or CV and let the professors know when and for how long you are available.

Resources for Research on the Web:

Biomedical Engineering Faculty Web Sites:

<http://bme.osu.edu/directory>

College of Engineering: <http://Engineering.osu.edu/research>

OSU Office of Undergraduate Research: <http://www.undergraduateresearch.osu.edu/>

Denman Undergraduate Research Forum: <http://denman.osu.edu>

National Science Foundation Search for Summer Research Experiences:

http://www.nsf.gov/crssprgm/reu/reu_search.cfm

Honors

The College of Engineering offers outstanding students several ways through which they can distinguish themselves, including designation as an Honors student, Latin honors at graduation, graduation with distinction in the field of study, and graduation with honors in Engineering.

Honors Students: Requirements to attain and maintain honors standing in the College of Engineering

Honors courses are mandatory and students must maintain a 3.4 cumulative point-hour ratio. Students must complete 18 credit hours of honors classes, upper division (4000+ not required by major), or graduate level courses over first 3 years. NOTE: FEH companion courses (FEH Engineering 1281 series, Math 1161 series & Physics 1260 series) count; a maximum of 2 of the 6 can be imbedded courses; Senior Petition graduate courses do not count. In addition, all students wishing to maintain an Honors status in the College of Engineering must have an approved Graduation with Honors application filed with the Honors Office by the end of their third year.

Latin Honors

Grade Point Averages:

3.90+	= summa cum laude
3.70 - 3.89	= magna cum laude
3.50 - 3.69	= cum laude

More detailed information about honors, and PDF documents with honors contracts and the entire Graduation with Distinction packet is available online at:

<http://Engineering.osu.edu/honors>

For more information on Honors options in Engineering, please contact:

Michael Knisley
Honors Advisor
College of Engineering
The Ohio State University
244 Hitchcock Hall
(614) 292-8143
knisley.33@osu.edu

The Co-Op & Internship Program

The Engineering Cooperative Education & Internship Program (ECIP) helps undergraduate students to obtain career-related employment of two types: cooperative education (co-op) positions and internships. A co-op experience alternates semesters of full-time coursework with periods of paid, full-time employment. This work arrangement will vary by employer, and it is important to understand the employer's expectation before accepting a position. Students should meet with Cory to evaluate different co-op arrangements before interviewing because many employers hire for specific "rotations". For instance, students may work full-time during the summer term, attend full-time classes in autumn, and return to their employer for full-time work in the spring. This would throw off the BME curriculum, as classes are only offered once a year. So it is important to meet with Cory to find out how doing a co-op will affect your classes and time to degree!!

Internships involve one work period with an employer. A work period may last for one semester or for two consecutive semesters. Summer internships are the most popular among students and employers; however, some employers offer internships in autumn or spring semesters as well. If you would like to do an internship outside of summer term, please see Cory!

Engineering students are eligible for initial registration with the Co-op & Internship Program when all of the following criteria are met:

- Enrolled in The Ohio State University College of Engineering.
- At least 18 years of age
- Successful completion of one full-time semester at Ohio State
- Cumulative Ohio State GPA ≥ 2.5
- Complete the ECIP 101 Carmen course
- Students who do not meet these requirements precisely may request an exception by completing a "Petition Form" and obtaining the approval of ECIP Director, Dean Pidcock. A meeting may be required.

Contact Information

Engineering Career Services Homepage:

<http://ecs.osu.edu>

Location

199 Hitchcock Hall

Phone: (614) 292-6651

Fax: (614) 292-4794

Email: eng-ecs@osu.edu

Director

Amy Thaci

614/292-1137

thaci.1@osu.edu

Office Hours:

Autumn and Spring terms: 8AM - 5PM

Summer term: 7:30AM – 4:30PM

Graduate Study in Biomedical Engineering

General Information

- Good Reasons to consider graduate education...
 - Interest in Research
 - Desire to Learn More About Biomedical Engineering
 - Expand Career Opportunities
- What Can You Expect?
 - Living Expenses and Tuition Paid
 - Less Structure and More Freedom Academically
 - Greater Competition in Courses
 - Expectation that You Will Be Self Motivated
 - Frustration and Joy of Being Active in Research

Choosing Schools to apply to...

1. Think about your interests in Biomedical Engineering. What areas would you like to learn more about?
2. Talk to faculty members in the department in your interest area – talk to them about research possibilities, which schools have good programs and good faculty, which schools would match your personality?

Talking with our faculty is probably the single most helpful thing in the search process. Faculty across the country make up a small group – people know people and other programs. They are also experts in their fields and can let you in on possibilities in the field of research.

If you aren't sure which areas of Biomedical Engineering you want to pursue further, but you know that graduate education is for you, then talk with faculty in a variety of different fields and find out what they are doing and what their colleagues are doing.

These talks provide valuable insight and a huge first step. From here you can look to rankings and other guides as well as check with the schools for more information. After you have applied to a number of schools you will have visits in February/March after the deadlines. This gives you the opportunity to see the campuses, meet with faculty and meet with graduate students who can give you invaluable opinions on the school, department and faculty.

When to apply?

Apply during Autumn semester (October-December). **Apply no later than the middle of January if you want to be considered for funding.** (Funding is typically reserved for PhD candidates, however, at some smaller schools MS candidates could receive funding.) Check with each school's website for deadlines and application requirements.

Application requirements

- Letters of recommendation: you want ask professors you know you well and can comment on coursework or undergraduate research; find professors who will write you a **GOOD** recommendation – if you do well in a course with a particular instructor, attempt to take courses with that instructor again and solidify your relationship.
- Statement of purpose: Outline your motivation for attending graduate school and your goals after receiving your degree. This essay allows you to express your interest in Biomedical Engineering.

Describe what area(s) interest you the most, and goals that you have for applying the training received. Since most of the materials supplied with the application are little more than numbers, data, and grades, this statement allows you to “speak” to the faculty reviewing your file and gives them a glimpse into your motivations. The statement should be 1-2 pages, but check with each school for specific requirements. Be sure to include your name (and, if necessary, SSN) on this document.

- Curriculum Vitae/Resume
- Transcripts
- GRE scores reported by ETS
 - Given year round at the computer-based test centers. A test center is located on OSU campus - 292-2241
 - Register online at www.ets.org or by phone 1-800-473-2255. Appointments fill up fast, so register early.
 - Arrive 30 minutes early to fill out registration paperwork. The test appointment lasts approximately 4 hours.
 - Plan on taking the GRE at the BEGINNING of autumn semester. If you do terribly, you can re-take it in December.
 - Visit the website for free general test preparation materials and other useful tips and resources for test takers.
 - Check for “GRE POWERPREP Software” (Includes two computer-based GRE General Tests, sample analytical writing topics, scored sample essays and reader commentary, test-taking strategies, a math review and test tutorials) in the “Downloads” section of the website.
- Optional: Any material that would enhance your application

Beating the odds

- Research and Work: Ideally, your undergraduate research should be in the Engineering area that you would like to pursue. Graduate schools know that the success rate of students who have done undergraduate research is very high. Relevant work experience adds a similar boost to your application.
- GPA and GRE requirements? Check with each school's website for minimums or averages. Here at OSU, to be competitive for admission to graduate school in BME and for Fellowships, a GPA of 3.6 and GRE scores in the 75th percentile would be appropriate.

Additional Tips on Getting In (from U.S. News & World Report)

- Score Well: Undergraduate Grades and GRE scores are the only objective ways that applicants from different schools can be compared, so scoring well is key. The bar for graduate admissions, though, is higher than undergrad, and showing steady improvement won't always cut it. If your grades are not at the top of the class, getting an outstanding letter of recommendation from a professor who knows you and your work well may be a saving grace.
- Research Helps: Most undergraduates have had some research experience, which is a good thing. Graduate programs value such experience highly. Independent research as an undergraduate in a professor's lab or lengthy research papers can demonstrate that you're well prepared for graduate student life and work. If you somehow managed to get your B.S. without spending time in a lab, doing some Engineering-related work between undergraduate study and grad school can help. If you take time off after receiving your bachelor's degree, make sure to stay in contact with professors for whom you've worked, or use your break to pursue your research interests.
- Grab Top Recommendations: Just as a dissertation adviser's helping hand can lead to a job after graduate school, a detailed, laudatory recommendation from a college mentor can help you get to

graduate school. If grad school is your desire, seek out mentors early and often, and express your interest in pursuing a higher degree.

- **Show Leadership:** The best schools look for students who've demonstrated leadership and character "and who've stretched themselves," says Delores Brown, admissions dean at Northwestern University's Feinberg School of Medicine. This could be holding elected school officer or organizing community action, for example. Mastering something, whether it's a sport, music, or research, is a plus. Interpersonal skills are important, too, with schools parsing letters of recommendation for clues to applicant's communication skills.
- **Do a Little Homework:** Do some research about the people with whom you'd like to do research. Graduate students spend a good deal of time with individual faculty members. Check out what other students are researching and which professors they are working with. Visit the campus, and take a stroll around the laboratories. A few hours on campus can tell you more about the place than days spent reading glossy admissions brochures.
- **Rankings Aren't Everything:** If you already have a particular field in mind, look at schools that have a strong track record of placing graduates in jobs in that area. Don't let a school's overall ranking discourage you from applying if one of its individual programs is particularly strong.

Suggested Prep Timeline for Graduate Study

Freshman and Sophomore Year

Academics

- Keep your GPA high
- Consider the Graduation with Honors Program and start planning on how to complete the program (3 parts: honors coursework, research experience, volunteerism/leadership)
- Consider any other areas of interest you would like to pursue in terms of studying abroad or pursuing a minor or second major and work with Cory to design an appropriate schedule
- Get Involved!! Find a club, activity, honors group, etc... Tutor, be a mentor, volunteer, etc...
- Join BMES (Biomedical Engineering Society, an Ohio State student organization)

Research Experiences

- Attend Denman Undergraduate Research Forum in the Spring to view projects
- Read over faculty profiles and BME Research webpage information - Begin to evaluate the areas of Engineering you are interested in for potential research projects and summer research internships
- Search and apply for REU's for summer (most apps due by March!)
- Register with ECIP and apply for research-based internships (earliest you can sign up is winter or spring of your first year!!)

Junior Year

Academics

- Keep your GPA high (minimum 3.0)
- Revisit the Graduation with Honors Program and evaluate your completion status
- Assume leadership roles in the groups that you have been active in

Research Experience

- Start working with a professor/GTA part time on a research project
- Participate in the Denman Undergraduate Research Forum
- If planning a senior thesis; plan research with a faculty member and submit thesis abstract to College of Engineering to compete for funding

Applications

- Get to know some faculty members (think: Recommendations)

Summer before Senior Year

Applications

- Talk with more faculty members about graduate schools you should think about
- Do searches online to view potential school choices
- Gather all application materials and start working on essays (drafts) and think about who you are going to ask for recommendations
- Study (A LOT) for and take the GRE by early August
- Begin to collect information about national and school-based fellowship programs, and their required application materials.
- Develop your personal timeline for applying, based on the requirements of specific programs. **KNOW THE DEADLINES.**

Research Experience

- Continue working on a research project and develop a thesis proposal or START working on undergraduate research by starting with professors

Senior Year

Sept/Oct

- Request your recommendations as soon as possible.
 - Remember to provide any required information or documents to those writing your recommendations. Make sure your recommenders know when the letters need to be sent to each school.
- You will also be required to send a number of official transcripts from each college or university you have attended; (this includes any summer school classes that may have been taken at a community college in your area). You can order official transcripts from Buckeyelink.
- Complete your Graduation with Honors in Engineering application or Graduation with Distinction Forms

December/January:

- Mail applications even if deadlines are later. Get applications in as early as possible.
- Complete applications for fellowships and send in to schools and national organizations

February

- Arrange to visit each department you have been admitted to. Most major departments invite admitted students to visit their school in March and early April (sometimes for specific dates or weekends), and most provide considerable travel support.

April-May

- Inform those programs you have been accepted to whether you will attend or not.
- If doing a thesis, be sure to schedule your defense in time to make changes and submit paperwork to the College Office
- If completing the GHIE program, collect final completion signatures

Policies & Procedures

**Financial Aid,
Transferring Credit,
Registration,
Academic Standards,
Graduation**

Financial Aid

There are three sources of financial aid for a student in Biomedical Engineering: the University, the College and the department. To apply for university, college and departmental scholarships, students complete one application, which can be found at <http://sfa.osu.edu/>. The original should be returned to the Student Financial Aid (aka Student Consolidated Services Center) office is on First Floor Student Academic Services Building. Two copies of the form should be turned in to David Donley in 122 Hitchcock Hall.

University Financial Aid

Financial aid is intended to help students finance their education when family and personal resources are not adequate to meet the total educational costs. Financial aid consists of scholarships and grants, loans (which must be repaid), and part-time employment. The university makes every effort within its means to help students with limited financial resources secure the needed funds.

Early and realistic financial planning is essential to ensure that students have adequate resources to be able to attend Ohio State and take advantage of the many experiences that the university offers. The Office of Student Financial Aid helps students and their families on all campuses plan for financing a college education. Please visit <http://sfa.osu.edu/> for more information regarding financial aid at the university, including general information, downloadable forms and checklists and listings of university scholarships.

Contact Information

Location: First Floor Student Academic Services Building; 281 W. Lane Ave.

Local Telephone: 614-292-0300

Toll Free Telephone: 800-678-6440

FAX Number: 614-292-9264

E-mail: sfa-finaid@osu.edu - General Questions

sfa-suggest@osu.edu - Suggestions

sfa-jobs@osu.edu - Student Employment & Federal Work-Study

If you have questions about Engineering scholarships, you should contact the College of Engineering Scholarship Coordinator, Marian Carter at carter.733@osu.edu

Scholarship/Financial Aid Applications and Deadlines for Undergraduate Students

Every year Engineering students do not receive thousands of dollars in scholarships and financial aid to which they are entitled, simply because they fail to file applications in a timely manner. The purpose of this memo is to provide information regarding application procedures and deadline dates to ensure that all Engineering students are aware of this important information.

Academic-based Scholarships Only

The easiest way to be considered for all University (e.g. Campus), College of Engineering scholarships is to complete the OSU Scholarship Application. This application is available at <http://sfa.osu.edu/forms/index.asp?tab=c>

File the original with the Office of Student Financial Aid on the first floor of the Student Academic Services Building and leave two copies in 122 Hitchcock Hall on or before March 1st. Students with renewable University-sponsored scholarships (e.g. Trustees or University Scholarship) do not need to file the OSU Scholarship Application to have those particular scholarships renewed. But students do need to file an application to be considered for any additional awards.

For Engineering majors and pre-majors, the most important part of the application is the Personal Statement section. You should use the Personal Statement to tell us about your specific interests, experiences and

goals as they relate to your current Engineering studies and future Engineering career. Our goal is to match students and donors with similar interests.

If all you are interested in are Engineering scholarships complete the OSU Scholarship Application available at <http://sfa.osu.edu> and file the original along with one copy in 122 Hitchcock. The deadline yearly is March 1st.

International students are eligible to apply for Engineering scholarships, as most of our funds are available to all Engineering majors and pre-majors regardless of nationality. Please note scholarships for international students are usually small and range from around \$500 to \$1,500 per year. Please submit two copies of the OSU Scholarship Application in 122 Hitchcock Hall by the March 1st deadline.

Need-based Aid

To be considered for need-based scholarships (e.g. Scarlet & Gray), Federal Supplemental Educational Grant (SEOG), OSU Grant, Justin Morrill Grant, Federal PELL Grant, State of Ohio Instructional Grant, Federal Perkins Loan, Federal Work-Study Program, or Federal Direct Student Loans you must file the Free Application for Federal Student Aid (FAFSA) with the federal processors by March 1st in addition to the Buckeye Basics application as described above. It is important to apply by the March 1 deadline, even if it means estimating the income information reported on your FAFSA. Ohio State's Office of Student Financial Aid is recommending that all students file the FAFSA on-line at <http://www.fafsa.ed.gov>

On-line Resources

The Office of Student Financial Aid homepage: <http://sfa.osu.edu>

File the FAFSA on the Web at: <http://www.fafsa.ed.gov>

Department of Biomedical Engineering Scholarship

The Kettering Scholarship is awarded to outstanding juniors and seniors in Biomedical Engineering.

Transferring Credit to Ohio State (Taking Courses at Another Institution)

Many OSU students take summer courses at an institution closer to home over the summer to knock out some general education courses or "catch up" on some technical courses. If you are thinking about taking courses at another institution over the summer, this page outlines considerations and steps to doing so. It's very important that you make sure the course you take will transfer back to OSU the way you expect. The best way to find out for sure how credit will transfer from another institution is to have it evaluated here at Ohio State in the department before you take the class.

What you should do before taking a class at another institution:

Go to www.transferology.com. Transferology contains information on how courses will transfer and apply towards your degree program at Ohio State. Use the Transferology Course Equivalency Guides to search for the particular course(s) that you are interested in taking, and use the Transferology Planning Guides to see how the course(s) will apply towards your Ohio State degree. Once your equivalency is determined.

*** If your course equivalency information is not on Transferology, you will need to contact the academic department for help in determining an Ohio State course equivalent. You may be asked to submit information such as course syllabi, text information, or course descriptions in order for the department to be able to determine the course equivalency. Many schools require that a student complete a transient student agreement to register for summer courses as a non-degree seeking student. Contact each individual school's registration office to see what paperwork needs to be submitted. This means that you do not have to apply to the school because you are not seeking a degree at that institution. ***

After you have taken the courses at the other institution, be sure to have your transcript sent back to Ohio State admissions so the coursework can be officially applied to your record.

Request that your transcript be sent to:
Ohio State University
Undergraduate Admissions
PO Box 182646
Columbus, OH 43218-2646

DO NOT SEND YOUR TRANSCRIPT TO THE DEPARTMENT!!

Registering for Courses

UTILIZING BUCKEYE LINK

There are a number of very helpful services available on Buckeye Link

<http://buckeyelink.osu.edu>

You must have activated your OSU username and created a password prior to utilizing these services.

Services available on the Buckeye Link website include:

- STUDENT CENTER!
- Clickable Campus Map(s)
- Change Address(es)
- View Grades (view your grades from each term you were enrolled)
- View Class Schedule
- Course Availability (check for available seats in a particular course(s))
- Course Bulletin & Master Schedule of Classes (find course offerings and descriptions by term/year)
- Registration Waitlist (look at your position in each of your wait-listed classes)
- Advising Report (summary of OSU academic history – unofficial transcript)
- Degree Audit Report (check progress toward your undergraduate degree – NOTE that this is not an official record of courses needed to graduate – please consult with the academic advisor to determine courses needed for graduation).
- Transfer Credit Report (view the results of your transfer credit evaluation)

SCHEDULING

You will receive an email prior to registration opening for the upcoming semester containing a date and time you may begin to register. This time and date is affectionately known as your “window” or “appointment.” If you feel that you have not received this email or lose it, the date/time will appear on your Student Center – and/or you can contact Cory or Lindsay. Once your window opens, you may access the on-line registration system to add courses or change sections through the first Friday of classes. You should schedule as soon as your window opens to prevent missing out on open seats in sections. Core courses outside of Biomedical Engineering fill up quickly, so it is important to schedule as soon as your window opens.

Online hours of operation are as follows:

- Monday through Saturday - 7am to 10pm
- Sunday - 11am to 10pm

Students should do the following checks before their window opens for registration:

1. Resolve all holds (traffic and parking tickets, library fines, fees, etc.)
2. Seek permission for courses, if needed, from the department offering the course and have approval posted on the system
3. If on probation, determine a schedule with an advisor

DROP DEADLINES – THE “FRIDAYS”

- You may access the on-line registration system to add courses or change sections through midnight of the **second** Friday of classes.
- On-line registration will remain open to DROP classes through the **fourth** Friday of classes. You can drop up to this time without receiving a “W” on your transcript. After the fourth Friday you will need to see an advisor to drop a class and you will receive a “W” on your transcript.
- The **tenth** Friday is the absolute **LAST** day to drop a class for the semester. You will receive a “W” on your transcript.

Please note: if you feel that you need to drop a course after the 10th Friday of a given semester, you will have to petition the College of Engineering for the course to be dropped from your schedule. There is a large amount of paperwork to be completed and you should talk with Cory Matyas or Lindsay Tolchin before attempting to petition to drop a course. **You cannot have taken the final in the course - and must have all paperwork submitted by the last day of the semester in which you are petitioning to drop the course**

The following are reasons that WILL NOT be accepted to drop a course after the 10th Friday deadline:

- Lack of preparation or dissatisfaction with the course or instructor
- Lack of knowledge of Financial Aid Policies or Immigration Rules
- Illnesses occurring prior to the deadline
- Not receiving midterms or sufficient grades prior to the deadline
- Being unaware of the deadline
- Being unaware that you were automatically enrolled from the waitlist
- Decision to change your major at any point
- You stopped attending the class, but just didn't drop it
- You thought you dropped the course online
- You were unable to contact your advisor or instructor

WAITLIST

If you are wait-listed for any course, be sure to attend the class the first week and make the instructor aware that you are on the waitlist. The rationale behind this is that to add a course after the first Friday, you need instructor permission. Thus, you will be much more likely to be added if the instructor knows that you are very interested and have been attending. The other benefit is that you will not be behind with the course work.

Keep checking your schedule online during the first week to see if you have been added into any courses. You may not receive notification from the registrar's office, so you have to take responsibility to check yourself.

For Chemistry and Math courses, if you are on the waitlist on the Monday following the first Friday of a semester, go to the departmental office first thing in the morning that Monday and ask to be scheduled into an open seat. Instructors in lower level math and chemistry courses do not add students, so you must see the departmental office.

The Higher Education Council of Columbus (H.E.C.C.) Program

The Higher Education Council of Columbus (H.E.C.C.) is an association of eleven colleges and universities located in the greater Columbus metropolitan area. As a service to students at the participating institutions, the Council approved a cross-registration program for regularly enrolled undergraduate full-time students (12 or more credit hours). The objective of the cross-registration program is curriculum enrichment, exposing students to an area of study that is unavailable on their home campus. The student is able to take advantage of areas of study unavailable at OSU without having to complete an extensive admissions process or pay additional instructional fees at the host institution. Cross-registration is NOT available, under any circumstances, during the Summer term at any institution. More information is available on the HECC website, located at <http://registrar.osu.edu/hecc/heccmain.asp> including a handbook for registration and list of participating institutions.

Course Equivalents at Columbus State Community College

Since Columbus State is a popular choice amongst current students as an alternative location to take courses, information on common course equivalencies at CSCC is shown on the following page. For a full listing, log in to u.select, choose "Equivalencies by School" from the menu and search by department. (Note: for more information on "u.select" please visit <https://oh.transfer.org/cas/home.htm>.)

Course Equivalents at Columbus State Community College

OSU	CSCC
Math 1151	Math 1151
Math 1152	Math 1152
Math 2153	Math 2153
Math 2568	Math 2568
Math 2415	Math 2415
Bio 1113	Bio 1113
Chem 1210	Chem 1171
Chem 1220	Chem 1172
Physics 1250	Physics 1250
Physics 1251	Physics 1251
English 1110	English 1100

Note: Minimum grade of "C-" is required for Math 1150, 1151 and 1152 to transfer

Please note that this is NOT an exclusive listing of courses that will transfer. Please visit <https://www.transferology.com> for a complete listing.

Most schools require that a student complete a transient student form to register for summer courses as a nondegree seeking student. Contact each individual school to see what paperwork needs to be submitted. The best bet is to contact their Admissions or Registrar's office.

It's very important that you make sure the course you take will transfer back to OSU the way you expect. The best way to find out for sure how credit will transfer from another institution is to have it evaluated here at Ohio State in the department before you take the class, or check the u.select system online.

After you have taken the courses at the other institution, be sure to have your transcript sent back to Ohio State admissions so the coursework can be officially applied to your record.

GRADE FORGIVENESS RULE

Effective autumn semester 2015, Ohio State will replace its Freshman Forgiveness Rule (FFR) with a more general Grade Forgiveness Rule. The new rule permits students to petition to repeat up to three courses under an arrangement similar to that provided by the FFR: the grade in the repeated course will replace the grade for the original course in the calculation of the student's cumulative point-hour ratio. As under FFR, **a notation of the original grade will remain on the student's transcript.** Unlike the FFR, the new rule does not limit repetitions to courses in which the student has earned a grade of "E" or "D," and it does not limit the repetition to a range of earned hours in which the student must have taken or repeated the course. The actual language of the new rule is immediately below.

3335-8-27.1 Grade forgiveness rule.

(A) Undergraduate students may petition the authorized representative of the dean or director of their enrollment unit to repeat a course and, after completing the course the second time, have the original course credit and grade excluded from the calculation of the student's cumulative point-hour ratio, but remain on the student's official permanent record. This action will be subject to the following conditions:

(B) Permission to apply this rule must be obtained by the second Friday of the semester or summer term (the second Friday of a session during autumn or spring semesters, or a summer session; or the first Friday of a May session) in which the repeated course is taken.

(C) The same course may be repeated only once under this rule.

(D) This rule may be applied for a maximum of three courses.

Academic Standards: Probation, Dismissal and Reinstatement

The Department of Biomedical Engineering (BME) encourages strong academic performance by its undergraduate pre-major and major students. To this end, students are provided with regular (at least once each semester) information concerning their academic standing in the BME Department. One means by which this is done is through the tracking of students' Special Action Probation (SAP) status. By tracking a student's SAP status, the student is given ample warning regarding the seriousness of his/her position and ensuring the continued quality of students graduating from the program.

Summary of University Rules

Probation (University Rule 3335-9-25A).

Any student who has accumulated fifteen or more deficiency points¹ shall be placed on probation. The probation shall continue provided the student's college considers the student's progress to be satisfactory and shall be removed when the deficiency points are fewer than fifteen. The dean of the college or the director of the school in which the student is registered shall notify the student of probationary status, except as provided in Faculty Rule 3335-9-27. Such notification shall include a clear statement of what shall be considered satisfactory progress.

Probation by Special Action (University Rule 3335-9-25B).

If at any time the preparation, progress, or success of a student in an academic program is determined to be unsatisfactory, the college or school in which the student is registered shall be empowered to place the student on academic probation. An undergraduate student admitted with conditions and who has not satisfied the conditions after earning thirty semester credit hours through regular course enrollment at this university shall be placed on academic probation.

University Academic Probation by Special Action (effective Summer Term 2013)

All students in the COE will be placed on University Academic Probation by Special Action once their Cumulative Point-Hour Ratio (CPHR) falls below 2.0, regardless of accumulated deficiency points. This academic review will be performed by the College Office.

The conditions for University Academic Probation by Special Action are as follows:

1. Student must earn at least a 2.3 term point-hour ratio (TPHR) for every subsequent term of enrollment during probation.
2. Student may not receive a "W" as a final mark in any class without permission.

Students who fail to meet these conditions can be dismissed from the college or academically dismissed from the University, as approved by the ASAP committee.

The probationary conditions above only apply for review of students for University Academic Probation actions. The student must also meet any probationary terms established by the student's premajor/major program for review of department specific actions.

Biomedical Engineering Departmental Regulations

The Undergraduate Handbook outlining departmental probationary and dismissal policy is distributed in the BME 2700 course offered each Spring. In addition, every student applying to the

¹ Number of credit points below minimum points needed for a 2.0 CPHR. Deficiency points is calculated as $2.0 \times \text{Credit Hours Attempted} - \text{Total Points Earned}$.

Biomedical Engineering major must submit a signed copy of the *Academic Standards: Probation, Dismissal and Reinstatement* document along with their application to major. The Undergraduate Handbook outlining the Department's probationary and dismissal policy is available on the Department's website.

1. Conditions for Departmental Warning

A student who earns a EPHR below a 2.0 will receive a warning letter from the department concerning their unsatisfactory academic performance. A student enrolled in a term that does not include any coursework within the Biomedical Engineering program will receive a warning letter for lack of progress towards the degree. In either case, the student will be required to meet with his or her academic advisor to discuss their situation. If a student meets the conditions for a warning for a second consecutive term, they will not be given a second warning, but shall be immediately placed on Special Action Probation.

2. Conditions for Special Action Probation (SAP)

The department can place a student on special action probation (SAP) if any of the following occur:

- Their CPHR falls below 2.0.
- Their MPHR falls below 2.0.
- Their SPHR falls below 2.0
- They fail to meet the requirements for repeated classes.
- They meet the conditions for warning for two consecutive terms (probation takes effect the second successive term after the initial warning)
- They are admitted to Biomedical Engineering after having been previously dismissed from BME or any other department, the College or the University.
- Lack of Progress – they are not taking any courses towards the BME degree for two terms.

To continue in the department on SAP a student must:

- Attain a minimum EPHR of 2.0 for the subsequent term with no grade lower than a C- and make a C+ or better when repeating a BME course.
- Not withdraw from any class without permission. (Any schedule changes must be approved by an advisor while on SAP).
- Complete a schedule of courses which are part of the degree program for Biomedical Engineering.

To be removed from SAP, the student must:

- Improve their EPHR to greater than 2.0.
- Improve their MPHR to greater than 2.0.

3. Conditions for Departmental Dismissal

A student can be dismissed from the department for not satisfying the conditions of their SAP.

In the case of special circumstances that may have affected their performance, a student may petition in writing to the Academic Standards and Progress Committee in the College of Engineering to have an action reviewed.

4. Policy on Departmental Reinstatement

A reinstatement petition will be considered by the department typically no sooner than two academic terms after the term of dismissal. In rare circumstances, petitions may be considered sooner. In the College of Engineering a student may be reinstated after dismissal a maximum of two times.

Any student reinstated to the department after dismissal from this or any other program in the College of Engineering will automatically be placed on SAP for the term they are reinstated.

5. Policy on Repeating Biomedical Engineering 2000 and 2700

Students receiving a grade of D+ or D in BME 2000 or BME 2700 shall repeat the course(s) before continuing on to the BME Domain Courses (BME 4110, BME 4210, BME 4310, BME 4410, BME 4510 or BME 4610).

Please note that this applies only to BME 2000 and BME 2700. Students will not be asked to repeat any other Biomedical Engineering course for receiving a grade of D+ or D. If the student repeating this course falls under the conditions for SAP they shall be placed on probation. They must meet the requirements of their SAP and they must make a C+ or better in the second attempt at a course.

Notification: Students shall receive a copy of this policy upon enrollment in BME 2000. A signed copy of this document will be kept in the students file.

6. Student Appeals Process

A student may appeal to the Undergraduate Studies Chair in writing for any concerns regarding Departmental warning or Special Action Probation.

A student may appeal any Departmental dismissal or any specific reinstatement condition(s) directly to the Academic Standards and Progress Committee.

Information for Graduating Seniors

When you begin thinking about post graduation plans, be it a career or graduate school or the military, keep in mind that you need to prepare for all of these things before you start your last year! August of the year prior to graduation should be spent completing your graduation application, planning your last year of coursework, taking the GRE if you are thinking about graduate school, starting applications, register with ECS, perfecting your resume and attending interview workshops.

It may seem overwhelming - don't panic - there are a lot of resources at your disposal!!

Yes, almost everything related to your future plans (whether you graduate in Spring or Summer and whichever route you choose to go) will hinge on your preparation and participation in the Fall term prior to graduation. Use all the resources that are available and be organized! If you have questions on any of the information presented below, please see Cory Matyas.

ENGINEERING CAREER SERVICES

Students who will receive a BS, MS or PhD degree from The Ohio State University College of Engineering, and have a minimum OSU GPA of 2.0, are eligible to register with the Graduating Senior/Graduate Student Program (GS) and to participate in on-campus recruiting during the academic year in which they will graduate. Students can start using GS either 2 or 3 semesters prior to graduation, to take advantage of peak interview season (Oct-Nov). Registrants may continue to use GS for 12 months after graduation, as well.

Homepage: <http://ecs.osu.edu/students/getting-registered/eligibility>

Location: 199 Hitchcock Hall

Phone: (614) 292-6651

Fax: (614) 292-4794

Office Hours:

Autumn, Spring Semester: 8:00AM-5:00 PM

Summer Term: 7:30AM-4:30PM

Email your questions and comments to eng-ecs@osu.edu

BECOMING A LICENSED PROFESSIONAL ENGINEER

Read more about reasons to become a licensed engineer from AICHE.org and www.peps.ohio.gov Each state and territory varies slightly, but in general, there is a four-step process required to obtain Engineering licensure (see below).

Step 1: Graduation

The first step is graduating from an ABET-accredited Engineering program at a college or university. ABET stands for Accreditation Board for Engineering and Technology, the nationally recognized accrediting organization for Engineering and technology curricula.

Step 2: FE Exam

The first exam in the licensure process is the Fundamentals of Engineering (FE). This exam is offered in April and October every year. Most students take the exam right before graduation or soon after while the technical information they've studied is still fresh in their minds. Once you pass the exam, you are classified as an intern, also known as Engineering Intern (EI) or Engineer-in-Training (EIT).

Please note: the College of Engineering offers a FE Preparation Course - Engineering 4510.

Step 3: Work Experience

After passing the FE exam, you will continue your journey toward professional licensure by gaining Engineering experience. Many jurisdictions have specific requirements about the type of experience you need to gain. Most require that you gain experience under the supervision of someone who is already licensed, and that your experience involve increasing levels of responsibility. Once you begin work, contact your licensing board to find out what experience is needed and talk with professional engineers in your company to find out how you can gain this experience.

Step 4: PE Exam

Once you have gained the appropriate experience required, you can take the second exam in the licensure process, the Principles and Practice of Engineering (PE). This exam is given in a variety of Engineering disciplines. Most disciplines are offered in both April and October, but some are offered only in October.

GRADUATION APPLICATION CHECKLIST

- ~ Check your DEGREE AUDIT online via Buckeyelink. This report will show you what coursework you are missing. Then schedule a meeting and bring this report with you.

- ~ Complete graduation application and return to Cory Matyas (273 Bevis Hall)

- ~ Check to be sure your name is listed correctly on your Degree Audit.
The name on your diploma must match the name that you have listed on the University Registrar's website. Please review your name on your Degree Audit. Should you want to change your name you must complete a "Request for Change of Record" form and provide appropriate documentation. Please submit the name change documents prior to completing the Graduation Application.

- ~ Update your permanent address on buckeyelink to ensure you receive all pertinent information without delay. Check this address for mail as well as your OSU e-mail on a regular basis.

- ~ Any financial obligations you have (fees, tickets, fines, etc.) must be paid with Fees and Deposits in Lincoln Tower.

- ~ Any HOLDS must be removed prior to graduation in order to receive your diploma.

- ~ Visit the book store for graduation announcements, University ring, gown, mortarboard, and tassel information.

- ~ Should your plans to graduate change, notify Cory Matyas. If you are changing the term that you plan on graduating, you must complete a new application.

- ~ Complete the post grad plan form online from Career Services

- ~ If required, complete a financial aid exit interview (check with the Office of Financial Aid)

COMMENCEMENT REHEARSAL

Instructions regarding the Commencement Ceremony are usually mailed out the tenth week of the semester. In general, the deadline to order cap and gown from the main bookstore is 4:30 p.m. on the eighth Friday of the semester.

The tassel for Engineering graduates is orange.

Graduation Rehearsal will typically be held the Friday before Commencement every term. You will be expected to stand with other students of the College of Engineering. You will not need to wear your cap and gown to the rehearsal, which lasts about an hour and a half.

All graduation ceremonies are held the Sunday following finals week. No tickets are required and there is no limit on the number of guests attending. During the ceremony, which will last about two hours, the president, the provost, and your cadet marshals will provide directions. Please listen carefully to their signals. OSU is one of the few institutions who distribute actual diplomas at commencement; therefore we ask that students participate in the ceremony.

Should you decide not to participate, you must notify the College Office (122 Hitchcock) of your plan not to attend by the deadline set in your information packet. Participation in the ceremony is reserved for graduates only. The Ohio Stadium is the location for Commencement only during Spring semester. At this time, Autumn Commencement is held in St. John's Arena and Summer Commencement is in the Jerome Schottenstein Center .

For more information about Commencement, visit <http://www.commencement.osu.edu>