

BME Advising – Frequently Asked Questions

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I've heard about a new curriculum that will take effect in Fall 2007. How does that affect me?

The new curriculum is intended for students who enrolled in Fall 2006 or later. (Transfer students should see Prof Olds). There are a couple of important effects of this new curriculum that students in the Class of 2009 should be aware of: 1) BME 308 will only be offered one more time - Fall 2008. It will not be offered in Fall 2009. If you were planning to take BME 308 in Fall 2009 due to co-op or for any other reason, make sure to discuss this with your advisor. 2) BME 395 will no longer be offered. Replacement courses are available. See Prof Olds.

I am uncertain if I have fulfilled all of my graduation requirements. Where can I check?

There are a couple of ways to do this:

1. Check your degree audit on CAESAR. If you see any issues, discuss them with your advisor.
2. In the fall of your senior year, you will receive a degree audit form from the Academic Services office, indicating which courses still need to be completed

for graduation. Take this to your advisor in the advising session for the Winter quarter (in October).

Although you are discussing these forms with your advisor, it is ultimately your responsibility to make sure you complete the degree requirements for graduation.

I've heard about a bunch of forms (such as theme forms, area of specialization forms...) that I need to complete. Where do I find these?

In the Academic Services Office (L269) or at the following website:

<http://www.mccormick.northwestern.edu/undergraduate/forms.html>

When should I submit my Area of Specialization or Track form?

You should submit this form at the end of your junior year. This provides the Academic Services Office with more complete information to base your degree audit on. This form must be turned in before you register for classes during the fall of your senior year (if planning a June graduation).

How do I get the Department Chair signature on forms that require it?

The Undergraduate Program Chair (Prof Olds) is the person who signs the "Department Chairperson" line. Put your completed form in her mailbox in the BME office (E310). She will then sign them and turn them in to L269. You will get a note from the BME office after your form has been turned in to L269.

How do I complete my Area of Specialization or Track form?

When filling out an Area of Specialization form, make sure to use the form with the right degree (Biomed Eng or Med Eng) and right catalog year, which can be found on the degree progress form on Caesar (shown on the same line for Math requirement). Here's some other useful info:

Catalog year - A student must use the form for the right catalog year and you may find the catalog year on Caesar.

Basic engineering courses – For Catalog Years prior to 2007: each area of specialization requires different basic engineering courses. Students should write in the 5 engineering courses they are taking to fulfill their requirements. A Curriculum Petition is required for a basic engineering course substitution.

Specialization courses - Students following Catalog Years prior to 2007 should specify 7 specialization courses. Petitions are required for changes, and these changes can be completed directly on the Area of Specialization form in the Petition Section. Include a reason if you are proposing changes to the established curriculum. And make sure to get those changes approved in sufficient time to take the required courses (in the event your petition is denied).

For students following any catalog year prior to 2007: I want to count BME 308 and BME 390 toward my speech requirement. How do I do that?

If you have not taken the Speech requirement (GEN_CMN 102 or 103) and plan to take BME 308 and BME 390 (both required, except for HPME), those two courses will satisfy your speech requirement. However, you still need 48 courses to graduate and need to submit a curriculum petition to count another course for your speech requirement. You can substitute any course toward your speech requirement that you are not using to fulfill other requirements. There is no need for that course to be at all speech-related. Here's how to complete the petition: In section B, part 2, fill in as follows: Use (fill in a course not being used to fulfill any other requirements) taken in (specify when course was taken) and count it towards the Speech requirement. In the "Reason for Request" section, indicate that you are planning to take BME 308 and BME 390 to satisfy the Speech requirement.

I want to substitute a required course with another. How do I do that?

You must petition to do this. Not all petitions are approved, so you must submit your petition with enough time to accommodate the required courses as stated in the curriculum. A petition for a course substitution should be completed as follows:

- 1) For a course substitution within your area of specialization: complete the petition section of the Area of Specialization form or complete a Curriculum Petition.
- 2) For a basic engineering course substitution: complete a Curriculum Petition.
- 3) All petitions require a reason for the substitution. After you have completed your petition, get it signed by your advisor and then put it in Prof Olds' mailbox.

Where can I find the yearly course schedule for BME and other courses?

Follow the Yearly Course Planner links from the Office of the Registrar website:

<http://www.registrar.northwestern.edu/registration/>

You can find links to yearly schedules for all colleges there.

Are there any classes I can P/N?

See <http://www.mccormick.northwestern.edu/undergraduate/pn.html> for more info.

A maximum of eight (8) quarter courses may be taken by undergraduates under the P/N Option, and used toward the degree. During the freshman and sophomore years, only one (1) course may be taken in any quarter under the P/N Option. Junior, pre-senior, and senior students are not subject to any limitations in a given quarter other than the overall guidelines. None of the required mathematics, basic science, basic engineering, engineering analysis, or engineering design and

communications courses may be taken P/N. None of the 16 courses within the biomedical engineering program (section VIII of the curriculum) can be taken P/N. Note that it is okay to take theme classes P/N. If you want to P/N a biomedical engineering course that you are taking as an unrestricted elective (not for your BME requirements), you should complete a P/N form and bring it to the Academic Services Office (L269) to be signed before the course is offered. You can not do this online.

What are the requirements for applying to the departmental honors program?

You need to have a GPA of 3.5 or higher when you apply to the program. Applications must be submitted at least 3 full quarters before you plan to graduate, but not before your sophomore year is complete. To apply to this program, pick up an Undergraduate Department Honors Program Application form in L269. The requirements for the program are included on the form. Please note that in the signature area, the Honors Adviser Name is Prof. Olds (the Undergraduate Program Chair) and the Proposed Honors Project Adviser is the faculty member with whom you plan to complete your 399 research.

Are there limits to the number of 399's I can take?

No, but not all of them will necessarily fulfill the degree requirements. They can certainly be used as unrestricted electives.

How do I add a 5th class?

Via Caesar during the first week of classes. Please note that taking extra courses some quarters to accelerate graduation will not reduce your tuition payments to Northwestern. Read the residency requirement on pages 26-27 of the Undergraduate Catalog. Any further questions about this policy should be directed to the Office of the Registrar.

How do I add a 6th class?

You need to get approval from Dean Holtgrieve within the Drop/Add period.

Can I take Bio 210-2 without taking Bio 210-1?

Students are encouraged to take Bio 210-1. However, it is OK to take BIO SCI 210-2 without BIO SCI 210-1. Just contact the BIO SCI 210 -2 instructor to do so.

Can I take Bio 210-2 without taking Chem 210-2?

Yes. Chem 210-2 is no longer essential for this course.

I'm planning to apply to medical school. Should I take Bio 210-3?

The following answer is from Prof. Linsenmeier, a faculty member who has taught Bio 210-3 and BME 303. His response applies to those students following catalog year 2007 or prior. For those following catalog year 2007 or later, you will be taking 3 quarters of systems physiology and getting additional biology content and lab skills in BME 305, 306, and 307, strengthening the argument to not take Biol 210-3.

There is a lot of confusion about whether BME students who are premed should take Biology 210-3. I have taught both BME 303 and Biol 210-3 for many years, and tried to pay attention to what students should do. In general, BME students will be fine if they don't take 210-3, and I actively discourage students from taking 210-3. There is, however, no one-course equivalency in BME for Biol 210-3, as explained below.

These comments *do not apply to BME HPMEs*, who are all required to take Biol 210-3.

Biology 210 has 6 units of material:

210-1: evolutionary biology/taxonomic issues, genetics

210-2: biochemistry, molecular biology

210-3: cell biology, human physiology

For most students, these meet the "one year of biology with lab" requirement of medical schools. However, BME students get far more physiology than is in 210-3 by taking two of the three quarters of BME Systems Physiology: (BME 301: neuroscience, BME 302: cardiovascular and respiratory, BME 303: renal, digestive, metabolic, endocrine.) Of course if you take all three quarters you learn a lot more, and then med school physiology is a snap. These courses do not have lab, except very occasionally, but all BME students also get substantial biology content in BME 308, which is a very heavy duty lab course, and they may also get lab in BME 346 and/or BME 310, which are also lab courses. Other BME courses have smaller lab components. Thus, for med school admission purposes, two of the BME physiology courses plus BME lab generally will meet the formal requirement.

The advantage of taking 210-3 is that cell biology is not covered explicitly, at present, in the BME curriculum, although substantial parts of cell biology are incorporated into 301, 302 and 303, especially 303. Taking 210-3 would give you the formal requirement of "one year of biology with lab." At one point we were aware of only one medical school, Indiana, that actually had a hard and fast requirement for this, however.

There are several disadvantages of taking 210-3. First, it wastes your time on a very difficult (at least in terms of the grading standards), very large, time-consuming, and partially redundant course. There are just too many ways to spend your time that would be more valuable. Second, many aspects of cell biology, including cell signalling and membrane transport, are covered in BME

courses, particularly in BME 303. You would just have to learn about trafficking of molecules intracellularly and concepts about the cell cycle on your own, or in MCAT classes. That's doable. Over time, we are likely to build more of cell biology into BME 303. Third, medical schools are presented with a variety of courses, and as long as you explain that you consider what you have taken to be equivalent to biology with lab, most schools are fine with this.

I've heard about the BS/MS program. Where can I get more info?

There are 2 BS/MS programs within the Department. One is research-based; the other is course-based. The research-based program is specific to BME.

Information on it can be found on the BME website at the following URL:

http://www.bme.northwestern.edu/information/prosp_undergrad_new_program.shtml The course-based program is a McCormick-wide program. More information on it can be found on the McCormick website at:

<http://www.mccormick.northwestern.edu/undergraduate/#specialprograms>

Can I take a course over the summer at another institution and have it count toward one of my required courses?

If you would like to transfer a summer course from another institution to Northwestern, you would need to obtain approval from the professor who teaches the course at Northwestern and submit a petition to your advisor and then to the BME Undergraduate Chair Prof. Olds. You should take the course only after the petition is approved by all those listed above and Dean Holtgreive.

Additional info about Organic Chemistry: If a current Northwestern student takes 2 semesters (or semester equivalents) of organic chemistry at a place other than Northwestern, three Chem 2xx credits will be granted*. For students who are following the 05-06 or earlier catalog years: the BME Department's policy is that 2 credits of Chem 2xx will satisfy the BME requirement of Chem 210-1 and Chem 210-2. The remaining credit can be counted as a technical or unrestricted elective. For students who are following catalog year 2006 or later: the BME Department's policy is that 1 credit of Chem 2xx will satisfy the BME requirement of Chem 210-1. The remaining two credits can be counted as either technical electives, unrestricted electives, or one of each. Prior to June 2006, students were granted Chem 210-1, Chem 210-2, and Chem 2xx credit.

*There are some courses (ex: Organic Chemistry for Nurses) that may not receive three credits, so make sure to get approval before you take the course.

Last update: 08/13/08