GETTING STARTED IN MATH AND THE SCIENCES

Some beginning advice....
This Session

This session is designed to give you introductory information about beginning the college-level study of the Sciences at Dartmouth College

Goals:

- To introduce you to the Science Curricula at Dartmouth
- For you to assess High-School preparation in the Sciences and what that means for starting Science sequencing at Dartmouth
- For you understand the best way to begin course work in individual disciplines (=departments/majors)
- For you to understand the relationship between courses in different Disciplines (Departments/majors)
Interested in Pre-Health?

If you’re considering beginning a Pre-health curriculum, the “Medicine & Health Fields Information Session” will be held here, starting at 4:00.
Overall info/advice

• Know where you’re starting (i.e., placements in math, sciences, etc.) and your strengths

• Not the same as high school (in terms of pace, difficulty, and grade scale)

• Successful students use Resources !!

• Your current comfort and mastery of Math has implications for how you begin study in the sciences
Know where you’re starting

• Because, this has implications for:
  
  • How easy or difficult your transition to college-level science coursework will be
  
  • What classes you take your first term
  
  • What classes you take your first year
  
  • Whether you take certain classes in combination
  
  • Later flexibility for other opportunities (Foreign Study, Off term, etc.)
Is this you?

• Placement into Math 1-2
• Placement into Chemistry 2
• No AP courses in Math or Science
• Concern about Math/Science preparation
• Less than 700 on the SATI Math Test
Or, is this you?

- Placement into Math 3
- You took AP Science course in High School but did not get a 5 on the AP (or didn’t take it)
- No science credit-on-entrance on placement record
Or, is this you?

- Placement into Math 8
- You got a 5 on one AP test: Biology, Physics, Chemistry
- At least one science credit-on-entrance
Or, is this you?

- Placement into Math 11 (or higher...)
- You got a 5 on two or more of the following AP tests: Biology, Physics, Chemistry
- Multiple science credits-on-entrance
- SAT (verbal plus math) > 1500
- Confidence/a strong background in science
Take a minute and decide

Little or no math and science background
- Placement into Math 1-2
- Placement into Chemistry 2
- No AP courses in Math or Science
- Concern about Math/Science preparation
- Less than 700 on the SATI Math Test

Some math and science background
- Placement into Math 3
- You took AP Science course in High School but did not get a 5 on the AP (or didn’t take it)
- No science credit-on-entrance on placement record

A great deal of math and science background
- Placement into Math 8
- You got a 5 on one AP test: Biology, Physics, Chemistry
- At least one science credit-on-entrance

Wow, did you take a LOT math and science!
- Placement into Math 11 (or higher...)
- You got a 5 on two or more of the following AP tests: Biology, Physics, Chemistry
- Multiple science credits-on-entrance
- SAT (verbal plus math) > 1500
- Confidence/a strong background in science
Little or no math and science background...

• Take Math 1 Fall term and Math 2 Winter term
• Consider taking Chem 2 fall term, or delay Chemistry until sophomore year (yes, you can still be a Chemistry major)
• Consider postponing Bio 11 to a later term
• Begin Physics track as Sophomore (yes, you can still be a Physics major)
• Be cautious about doubling up in Science, Math, or Engineering classes in any particular term during your first year (There are exceptions; consult with departments and your advisors)
• Two courses with labs in one term is always a large work load. Avoid two lab courses in the same term during your first year
• (and yes, you can still complete the Pre-health curriculum before you leave Dartmouth)
Implications for little or no math and science background

- You will likely adjust to college level work at a pace that will allow for success in your first year.
- You will have less flexibility in your D-Plan (i.e., schedule) particularly later years.
- Off-campus programs (LSAs and FSPs) are possible but require careful early planning of your schedule.
- You will have room for fewer electives.
- You should limit your extracurricular activities during the first year (this includes even internships and academic opportunities outside the classroom).
- If you are Pre-health, you may have to take a year off between college and medical school (this is now the norm at Dartmouth and nationally).
Some math and science background

- Take Math 3 (the pre-req for most science majors) in the Fall term
- If interested in Bio, Chem, or Engineering, take Chem 5 Winter term
- Take Bio 11 sometime in your first year (though maybe not fall term)
- Physics: Take 13/14 in Winter or Spring Term and Physics 19 in the Fall term of sophomore year
- NeuroSci: Math 3 fall and Psych 6 Fall or Winter term
- Avoid doubling up Science, Math, or Engineering in the first two terms
- Do not have your first lab course be during a term where you are taking two such courses
Implications for some math and science background

• Pay careful attention to your schedule as you go forward. You *can* do Foreign Study, etc., but it requires advance planning.

• This allows you to take Chem 5-6 in your first year, and Chem 51-52 ("Orgo") as a sophomore.

• If interested in Physics, you should take at least two Physics courses in the first year (and often three)

• You should limit your extracurriculars for the first year

• Engineering: Take 4 (of the 6) prereqs in your first year. *Wait for 2nd* year to take Engineering courses (for ex. Engs 20 or 21)

• This allows you to apply to med school in your final year at Dartmouth.
A great deal of math and science background

- Take Math 8 in your first term if you want to study Math, Physics, Chemistry, or Engineering.
- You could take Chem 5 (or Chem 6 or Chem 10 if placed) in the fall.
- Physics: Take 13/14/19 in the first year (or, postpone Physics 19 to sophomore fall).
- Engineering: Take Engs 20 or 21 in the spring of the first year, then the other in sophomore fall.
- Neuro: Take Psych 6 Fall or Winter term.
- Biology: Take Bio 11 Fall or Winter, and plan on a second Bio class in your first year.
- There is no reason for you to take two courses with lab in the first term. It is probably a good idea to wait at least until Winter term.
Implications for a great deal of math and science

• You will have more flexibility down the road. (But don’t squander this)

• It will be easier to fulfill a second major in addition to your science major

• You should be able to fulfill the prerequisites for your science major in your first year
A very thorough math and science background

- Take Math 11 (or higher) in your first term if you want to study Math, Physics, Chemistry, or Engineering.
- Consider taking Chem10 (if placed) in the Fall.
- Physics: Take 15/16/24 in the first year (the honors track).
- Engineering: Take Engs 20 or 21 in the spring of the first year, then the other in sophomore fall.
- Neuro: Take Psych 6 Fall or Winter term.
- Biology: Consider if Bio 11 in Fall or Winter is appropriate for you or if you should start directly with Bio 12-16. Plan on a second Bio class in your first year.
- It is OK to double up on Math and Science courses in the first term.
- You may consider taking two courses with labs in the first term.
Implications for a very thorough math and science background

- You will have more flexibility down the road (e.g. easier to schedule FSPs, LSAs etc.)
- It will be easier to fulfill a second major in addition to your science major
- You should be able to fulfill the prerequisites for your science major in your first year
- You likely will taking intermediate level math/sciences courses in your first year
Some general advice
(This is not the same as high school)

• Course work will go faster than you anticipate (keep up with notes and problems; this will start in the first week)
• Schedule 3 hours of study and prep time out of class for every hour you spend in class. (i.e., you will need a minimum of 30 hours a week outside of class to keep up)
• As you adjust to college work, you will need to learn how to study. This takes time.
• Don’t be surprised if your first exam grade is a 69. This could very well be a passing grade (depending on the curve/course etc.)
Successful students use resources

- Professors’ Office Hours
- Math Department – drop-in tutorials
- Academic Skills: Learning strategies
- Tutor Clearinghouse: peer tutors and study groups
  - Sign up early in the term
- Form your own study group
Who’s here today
Departmental Representatives

- Mathematics – Scott Pauls
- Neuroscience – Catherine Cramer
- Engineering – Sol Diamond
- Computer Science – Devin Balkcom
- Earth Sciences – Brian Dade
- Chemistry – Jon Kull
- Physics – Jim LaBelle and Kristina Lynch
- Biology – Thomas Jack
- Pre-Major Advising – John Pfister
Meet Faculty and Students from Today’s Panels Top of the Hop, Hopkins Center
4:00 P.M. – 5:45 P.M.
Web address

The Slides for this presentation can be found at:

http://www.dartmouth.edu/~ugar/premajor/

Or, Google the phrase

“PreMajor Dartmouth”