# Prerequisites for FALL sophomore year major subjects

**Civil Engineering Track**

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course 1.000</td>
<td>Civil and Environmental Engineering</td>
<td>None</td>
<td>18.03</td>
</tr>
<tr>
<td>Course 1.050</td>
<td>Physics I GIR</td>
<td>Physics I GIR</td>
<td>Calculus II GIR</td>
</tr>
<tr>
<td>Course 18.03</td>
<td>Calculous II GIR</td>
<td>None</td>
<td>Calculus II GIR</td>
</tr>
<tr>
<td>Course 1.101</td>
<td>None</td>
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</table>

**Environmental Engineering Science Track**

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Prerequisite</th>
<th>Corequisite</th>
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</thead>
<tbody>
<tr>
<td>Course 18.03</td>
<td>Calculous II (GIR)</td>
<td>None</td>
<td>Calculus II (GIR)</td>
</tr>
<tr>
<td>Course 1.018A</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<tr>
<td>Course 1.000</td>
<td>None</td>
<td>None</td>
<td>18.03</td>
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</table>

**Systems Engineering Track**

<table>
<thead>
<tr>
<th>Course</th>
<th>Type</th>
<th>Prerequisite</th>
<th>Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course 1.010</td>
<td>Calculous II (GIR)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Course 1.101</td>
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<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Course 18.03</td>
<td>Calculous II (GIR)</td>
<td>None</td>
<td>Calculus II (GIR)</td>
</tr>
<tr>
<td>Course 1.000</td>
<td>None</td>
<td>None</td>
<td>18.03</td>
</tr>
<tr>
<td>Course 2</td>
<td>Mechanical Engineering</td>
<td></td>
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<tr>
<td><strong>Course 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prerequisites:</strong></td>
<td>8.01 (for 2.001); 8.02 (for 2.003) 8.01, 18.02 (for 2.086)</td>
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</tr>
<tr>
<td><strong>Corequisites:</strong></td>
<td>18.03 or 2.087 (for 2.001); 18.03 or 2.087 (for 2.003); 18.03 or 2.087 (for 2.086)</td>
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</tbody>
</table>

| **Course 2-A** |  |
| **Prerequisites:** | 8.01 (for 2.001); 8.02 (for 2.003) 8.01, 18.02 (for 2.086) 8.02 (for 2.678); |
| **Corequisites:** | 18.03 or 2.087 (for 2.001); 18.03 or 2.087 (for 2.003); 18.03 or 2.087 (for 2.086) |

| **Course 2-OE** |  |
| **Prerequisites:** | 8.01 (for 2.001); 8.02 (for 2.003) 8.01, 18.02 (for 2.086) |
| **Corequisites:** | 18.03 or 2.087 (for 2.001); 18.03 or 2.087 (for 2.003); 18.03 or 2.087 (for 2.086) |

<table>
<thead>
<tr>
<th>Course 3</th>
<th>Materials Science and Engineering</th>
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<tbody>
<tr>
<td><strong>Course 3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>3.012</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Prerequisite:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Corequisites:</strong></td>
<td><strong>18.03, 18.032, or 3.016</strong></td>
</tr>
</tbody>
</table>

| **3.014** |  |
| **Prerequisite:** | None |
| **Corequisite:** | None |

| **3.016** |  |
| **Prerequisite:** | **Calculus II (GIR)** |
| **Corequisite:** | None |

| **18.03** |  |
| **Prerequisite:** | None |
| **Corequisite:** | **Calculus II (GIR)** |

| **Course 3A** |  |
| **3.012** |  |
| **Prerequisite:** | None |
| **Corequisites:** | **18.03, 18.032, or 3.016** |

| **3.014** |  |
| **Prerequisite:** | None |
| **Corequisite:** | None |

| **Course 3C** |  |
| **3.012** |  |
| **Prerequisite:** | None |
| **Corequisites:** | **18.03, 18.032, or 3.016** |

| **3.014** |  |
| **Prerequisite:** | None |
| **Corequisite:** | None |

| **3.016** |  |
Prerequisite:  Calculus II (GIR)
or
18.03
Prerequisite:  None
Corequisite:  Calculus II (GIR)

Course 4 (BSA) and 4B (BSAS)  Architecture

4.021
Prerequisite:  None
Corequisite:  None

4.401
Prerequisite:  None
Corequisite:  None

4.500
Prerequisite:  None
Corequisite:  None

4.603
Prerequisite:  None
Corequisite:  None

Course 5  Chemistry

Course 5
Prerequisites:  Chemistry GIR, 5.12
Corequisite:  5.13 (for 5.363)

Course 5-7
Prerequisites:  Chemistry GIR, Biology GIR, 5.12
Corequisite:  5.13 (for 5.363)

Course 6  Electrical Engineering and Computer Science

Prerequisites:  Physics II (for 6.002, 6.003), Calculus I (for 6.042), Calculus II (for 6.008, 6.041A), 18.03 or 2.087 (for 6.003), 6.0001 (for 6.0002, 6.01, 6.02, 6.006, 6.009, 6.034, 6.036), 6.042 (for 6.006, 6.045)
Corequisite:  18.03 or 2.087 (for 6.002)
Subjects Considered:  6.00/6.0001/6.0002, 6.01, 6.02, 6.002, 6.003, 6.004, 6.006, 6.008, 6.009, 6.034, 6.036, 6.041A, 6.042, 6.045

Course 7  Biology

*Recommend completion of the Chemistry and Biology GIRs before the fall of the sophomore year.
*Recommend enrollment in 5.12 in Course 7 fall sophomore year.

For Biology, the sophomore level courses are 7.02, 7.03, 7.05.  7.06 possibly but most students won’t have fulfilled the prerequisites.

7.02 (Fall, Spring)
Prerequisite:  Biology GIR
Corequisite: None

7.03 (Fall, Spring)
Prerequisite: Biology GIR
Corequisite: None

7.05 (Spring)
Prerequisite: Biology GIR, 5.12
Corequisite: None

7.06 (Fall, Spring)
Prerequisite: 7.03, 7.05 or 5.07
Corequisite: None

Course 8
Physics

Course 8.223
Prerequisites: 8.01, 18.02
Corequisite: None

Course 8.03
Prerequisites: 18.02, 8.02
Corequisite: None

Course 8.033
Prerequisites: 8.02, 18.02
Corequisite: None

Course 8.04
Prerequisites: 8.03, 18.03, 18.032
Corequisite: None

Course 8.044
Prerequisites: 8.03, 18.03
Corequisite: None

*All students must fulfill the 8.01 and 8.02 requirement, either by passing the ASEs, through transfer credit and by passing the validation exam, or by taking the class. Students are highly encouraged to earn those credits freshmen year, although they do not have to. It should be noted that although the requirements are listed as 8.01 and 8.02, there are other classes that fulfill the two requirements as well. Classes that count for 8.01 include 8.01, 8.011, 8.012, 8.01L, CC.801, CC.8012, ES.801, ES.8012. Classes that count for 8.02 include 8.02, 8.021, 8.022, CC.802, CC.8022, ES.802, and ES8.022. Some of those classes listed are limited to particular majors, but they all cover the same material with some covering extra information.

*The physics department policy does not require students to be of a certain course level before declaring a major. As long as they are of sophomore standing as far as credits, they are qualified to declare Physics as major. Also, it should be noted that although the prerequisites listed are encouraged to be taken before the class in order to set the student up for success, some of the lower level classes are considered corequisites (meaning that they can take the perquisite at the same time as the class itself). The department would not turn a student down from declaring Physics as a major if they do not pass 8.01 or 8.02 although, for their own success, they should have done well in those courses in order to sign on to being a physics major; as long as students complete all of our required major courses before they graduate, they will earn their degree.
Course 9  Brain and Cognitive Sciences

* Typically, students entering their sophomore year in BCS are advised to take 9.01 and 6.00 in the Fall, and 9.00 and 9.40 the following Spring semester. Since both 9.00 and 9.01 do not have pre-requisites and can be taken in the Fall and Spring of freshmen year, a few other classes are listed here that can be taken in the Fall of sophomore year if if the student has already met the pre-requisite requirement.

Course # fall sophomore year: 6.00 (not our department’s subject but is required for our majors)
Prerequisite: None
Corequisite: None

Course # fall sophomore year: 9.01
Prerequisite: None
Corequisite: None

Course 9.07
Prerequisite: 6.00
Corequisite: None

Course 9.15
Prerequisite: 7.29 or 9.01, or permission of instructor
Corequisite: None

Course 9.85
Prerequisite: 9.00
Corequisite: None

Course 9.31
Prerequisite: 9.01
Corequisite: None

Course 10 Chemical Engineering (Course X, XB, XENG)
Prerequisites: Chemistry(GIR), Physics I (GIR), Calculus I (GIR) (for 10.10), Chemistry (GIR), Calculus I (GIR) (for 5.60)
Corequisite: None

*Please complete 7.01x in freshman year, because of fall schedule conflict with 5.60.

Course 11 Urban Studies and Planning
Prerequisite: None
Corequisite: None

Course 12 Earth, Atmosphere and Planetary Science
Information coming soon.

Course 14 Economics
All Economics majors start with 14.01 and/or 14.02. Some students take those in their freshman year and others start to take them in their sophomore year. The only prerequisite/corequisite for these courses is 18.01, which all students will have taken by their sophomore year.

Course 15 Sloan School of Management

There is no single path through any of the three Sloan majors. All three majors have a great deal of flexibility. We have listed subjects that are well suited for taking in the sophomore year (and the Spring Course 15 subjects are good introductions to the major for Freshmen). Most of these subjects could be taken in subsequent years if desired. Moreover, there are other requirements of the major that could be taken in the sophomore year.*

Course 15-1 Management

15.0791 (F) or 18.600 (F, S) Prerequisite: 18.02
15.279 (F, S) Prerequisite: None
15.301 (F) Prerequisite: None
15.501 (F, S) Prerequisite: None

Course 15-2 Business Analytics

6.00 or 6.0001&2 (F, S) Prerequisite: None
15.053 (S) Corequisite: 6.00 or 6.0001 & 6.0002
15.0791 (F) or 18.600 (F, S) Prerequisite: 18.02
15.276 (S) Prerequisite: None
15.312 (F) Prerequisite: None

Course 15-3 Finance

14.01 (F, S) or 15.0111 (F) Prerequisite: None
15.0791 (F) or 18.600 (F, S) Prerequisite: 18.02
15.417 (S) Prerequisite: None
15.418 (F) Prerequisite: 15.401 or 15.417
15.501 (F, S) Prerequisite: None

*Detailed course roadmaps for each Course 15 major that outline which courses to take when for students starting our majors in either the Freshman Spring, Sophomore Fall, Sophomore Spring, or Junior Fall: [http://mitsloan.mit.edu/undergrad/](http://mitsloan.mit.edu/undergrad/)

Course 16 Aeronautics and Astronautics

Prerequisites: 18.01, 18.02, 8.01 (for 16.001); 18.01, 18.02 (for 16.002)
Corequisites: 18.03, 16.002 (for 16.001); 8.02, 18.03 or 18.032, 16.001 (for 16.002)

Course 17 Political Science

There is no single or primary route through the Political Science major. Very few of our classes have prerequisites. For each of the areas of the field (US, Public Policy, International Politics, Political Philosophy, Comparative Politics, Methods) it is suggested that students first take the introductory class but it is not required. Some of our classes require permission of the instructor.

Course 18 Mathematics

There is no single, or even primary, route through the Math major. Because of the major’s flexibility and breadth, students can go in many different directions once they have completed the GIRs: Calc I (18.01 or 18.01A) and Calc II (18.02, 18.02A or 18.022). Some typical classes for sophomores to take, depending on what they completed their freshman year, include: 18.03 (co-req: Calc II) F/S - a core subject required for all tracks through the major.
Following 18.03, routes vary widely….

In Applied Math:

18.200 (co-req: 18.06) F/S
18.300 (pre-req: Calc II and 18.03) S
18.353 (pre-req: 18.03) F
18.354 (pre-req: 18.03) S

In Pure Math:

18.100 (pre-req: Calc II) F/S
18.700 (pre-req: Calc II) F
18.701 (pre-req: 18.100 or permission of instructor) F

Courses of interest to either pure or applied mathematicians might include:

18.06 (pre-req: Calc II) F/S
18.600 (pre-req: Calc II) F/S

Course 20 Biological Engineering

Prerequisites: 18.02, 8.01, 3.091/5.111/5.112 (for 20.110); 3.091/5.111/5.112 (for 5.12); none (for 6.00)
Corequisites: 18.02 (for 18.03)

*Please complete 7.01x in freshman year, because of fall schedule conflict with 20.110.

Course 21 School of Humanities, Arts, and Social Sciences

Course 21 Humanities
Prerequisite: None
Corequisite: None

Course 21 As Women’s and Gender Studies
Prerequisite: None (for WGS.101)
Corequisite: None (for WGS.101)

Course 21E Humanities and Engineering
Prerequisite: None
Corequisite: None

Course 21S Humanities and Science
Prerequisite: None
Corequisite: None

*Roadmaps for all SHASS majors: https://shass.mit.edu/resources/advisors/major
*List of three suggested introductory subjects in each field: https://shass.mit.edu/undergraduate/classes. These subjects have no pre-requisites.

Course 21A Anthropology
Course 21G  Global Studies and Languages

Course 21G French
Prerequisite: 21G.302 (for 21G.303)
Corequisite: None

Course 21G German
Prerequisite: 21G.402 (for 21G.403)
Corequisite: None

Course 21G Spanish
Prerequisite: 21G.702 (for 21G.703)
Corequisite: None

Course 21H  History
Prerequisite: None
Corequisite: None

Course 21L  Literature
Prerequisite: None
Corequisite: None

Course 21M  Music and Theater Arts

Course 21M-1 Music
Prerequisite: 21M.051
Corequisite: None

*21M.301 is one of the only required classes for the major. If students have no experience reading and writing music, they will need to take 21M.051 before taking 21M.301, which would be a good class to take at the start of their sophomore year.

Course 21M-2 Theater Arts
Prerequisite: None
Corequisite: None

Course 21W  Writing
Prerequisite: None
Corequisite: None

Course 22  Nuclear Engineering
Prerequisites: Phys II, Calc II (8.03 and 2.005); Calc II (18.03 + Fall options for the math restricted elective); Phys I, Calc II (2 of 4 computation restricted electives)

Corequisites: 18.03 (2.005 and 2 of 4 computation restricted electives – one also requires Phys I/Calc II pre-req, one only has the co-req)

Computation Restricted Elective (choose 1)
6.0001 + 6.0002, no pre-requisites
12.010 Calc II, Phys I
2.086 Calc II, Phy I, co: 18.03
1.000 co: 18.03

Math Restricted Electives (choose 1) – Fall offerings
6.041A + 6.041 B Calc II
18.600 Calc II

Course 24  Linguistics and Philosophy

Linguistics
Prerequisite: 24.900 or 24.9000
Corequisite None

Philosophy
Prerequisite: Typically an introductory class in philosophy numbered 24.00 - 24.09
Corequisite None

Course CMS/W Comparative Media Studies/Writing

Prerequisite: None
Corequisite: None

Course STS  Science, Technology and Society

Prerequisite: None
Corequisite: None

*STS does not have pre-reqs or a stand-alone major. However, students who are interested in pursuing a minor or double major in STS are encouraged to take one of the STS Tier I classes in their freshman year. A list of STS Tier I classes are posted here: http://sts-program.mit.edu/academics/undergraduate/tier-i-subjects/.