# Engineering Science Curriculum

**by semester**  
**Total credits:** 128  
**revised December 2018**

## First Semester
- **APMA 1110** Single Variable Calculus  
  - Credits: 4
- **CHEM 1610** Intro Chemistry for Engineers I  
  - Credits: 3
- **CHEM 1611** Intro Chemistry Lab  
  - Credits: 1
- **ENGR 1624** Intro to Engineering  
  - Credits: 4
- **STS 1500** Sci, Tech and Contemp Issues  
  - Credits: 3

## Second Semester
- **APMA 2120** Multivariate Calculus  
  - Credits: 4
- **PHYS 1425** General Physics I  
  - Credits: 3
- **PHYS 1429** Physics Workshop  
  - Credits: 1
- **CS 111x** Intro to Programming  
  - Credits: 3
- **Math and Science Elective\(^{(1)}\)**  
  - Credits: 3
- **HSS elective\(^{(2)}\)**  
  - Credits: 3

**Total Credits:** 15

## Third Semester
- **APMA 2130** Ordinary Differential Equations  
  - Credits: 4
- **PHYS 2415** General Physics II  
  - Credits: 3
- **PHYS 2419** Physics Workshop  
  - Credits: 1
- **Primary minor elective\(^{(3)}\)**  
  - Credits: 3
- **Secondary minor elective\(^{(4)}\)**  
  - Credits: 3
- **Science elective\(^{(6)}\) or HSS elective\(^{(2)}\)**  
  - Credits: 4 (or 3)

**Total Credits:** 17

## Fourth Semester
- **Advanced Math/CS elective\(^{(5)}\)**  
  - Credits: 3
- **HSS elective\(^{(6)}\) or Science elective\(^{(6)}\)**  
  - Credits: 3 (or 4)
- **Primary minor elective\(^{(3)}\)**  
  - Credits: 3
- **Secondary minor elective\(^{(4)}\)**  
  - Credits: 3
- **STST 2XXX/3XXX elective**  
  - Credits: 3

**Total Credits:** 15

## Fifth Semester
- **Primary minor elective\(^{(3)}\)**  
  - Credits: 3
- **Secondary minor elective\(^{(4)}\)**  
  - Credits: 3
- **Area of concentration\(^{(7)}\)**  
  - Credits: 3
- **Advanced technical elective\(^{(9)}\)**  
  - Credits: 3
- **HSS elective\(^{(2)}\)**  
  - Credits: 3
- **Unrestricted elective\(^{(8)}\)**  
  - Credits: 3

**Total Credits:** 18

## Sixth Semester
- **Primary minor elective\(^{(3)}\)**  
  - Credits: 3
- **Secondary minor elective\(^{(4)}\)**  
  - Credits: 3
- **Area of concentration\(^{(7)}\)**  
  - Credits: 3
- **Advanced technical elective\(^{(9)}\)**  
  - Credits: 3
- **Unrestricted elective\(^{(8)}\)**  
  - Credits: 3

**Total Credits:** 15

## Seventh Semester
- **STS 4500** STS and Engineering Practice  
  - Credits: 3
- **Advanced project\(^{(10)}\)**  
  - Credits: 3
- **Primary minor elective\(^{(3)}\)**  
  - Credits: 3
- **Secondary minor elective\(^{(4)}\)**  
  - Credits: 3
- **Area of concentration\(^{(7)}\)**  
  - Credits: 3

**Total Credits:** 15

## Eighth Semester
- **STS 4600** The Engineer, Ethics and Profession  
  - Credits: 3
- **Advanced project\(^{(10)}\)**  
  - Credits: 3
- **Primary minor elective\(^{(3)}\)**  
  - Credits: 3
- **Secondary minor elective\(^{(4)}\)**  
  - Credits: 3
- **Unrestricted elective\(^{(8)}\)**  
  - Credits: 3

**Total Credits:** 15

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(1) Math and Science Elective - Chosen from the SEAS Undergraduate Dean's Office Approved List of Math and Science Electives, available online and in Thronton A-122.

(2) HSS electives are chosen from the approved list available in A122 Thornton Hall.

(3) **Primary minor** electives must be chosen so as to earn an approved SEAS technical minor. Once primary minor requirements are satisfied, any 2xxx or higher technical SEAS course is acceptable.

(4) **Secondary minor** electives must be chosen so as to earn an approved technical minor in SEAS, mathematics, or a natural science. Once secondary minor requirements are satisfied, any 2xxx or higher technical SEAS, mathematics, or natural science course is acceptable.

(5) Advanced math/CS elective: One 3xxx-level or higher mathematics courses in SEAS or CLAS; or one 2xxx-level or higher course in computer science.

(6) Science elective: Either CHEM 1620 with lab or PHYS 2620.

(7) The "Area of Concentration" is comprised of 3 technical courses which provide identity and add depth to the student's major field. Advisor approval is required.

(8) Unrestricted electives may be chosen from any graded course in the University except mathematics courses below MATH 1310, including STAT 1110 and STAT 1120, and courses that substantially duplicate others used for the student's degree.

(9) Advanced technical elective: 3xxx level or higher course in natural sciences or SEAS.

(10) Advanced Projects is a graded research, independent study, or design course. Individual or group projects are possible. Engineering in Context (EIC) courses may substitute.