# Engineering Content

## Required for All Students

<table>
<thead>
<tr>
<th>ENGR</th>
<th>DESIGN</th>
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<tbody>
<tr>
<td>ENGR1125</td>
<td>ENGR1200</td>
</tr>
<tr>
<td>ISIM</td>
<td>DESNAT</td>
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<tr>
<td>ENGR2110 POE</td>
<td>ENGR2250 UOCD</td>
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## 2 semesters CAPSTONE

- Either ENGR4190 SCOPE
- OR ENGR4290 ADE
- Capstone

- DESIGN DEPTH
  - One of: ENGR3210 SUST DES
  - ENGR3225 SYSTEMS
  - ENGR3232 BIOMED DES
  - ENGR2240 TELL THE STORY...
  - (see next page for more options)

## Required Engr Courses for Each Concentration

### Me

| ENGR2320 | ENGR2410 |
| Mech Solids | SISYS |
| *ENGR2340 Dynamics | ENGR2420 Circuits |
| ENGR2350 Therm | ENGR2510 Softdes |
| ENGR3110 Transport Phenomena | ENGR3410 Commpch |
| ENGR3230 Mec Desgn | ENGR3415 DSP or ENGR3420 Ana&Dig |
| ADDITIONAL ME Elective (4 credits) | ADDITIONAL ECE Elective (4 credits) |

### E:Bio

- 12 credits of coursework appropriate to bio-engineering

### E:C

- 8 ADDTL CREDITS IN COMPUTING

### E:D

- 8 CREDITS APPROVED ADVANCED DESIGN COURSES; 4 CREDITS MAY BE DESIGN RS

### E:Robo

- 4 CR COURSE-WORK IN SOFTWARE

### E:Self

- 4 CR COURSE-WORK IN MECH ENGR

### Additional

- 2 CR INDEP STUDY ON PORTFOLIO CREATION (OPTIONAL)
- ENGR3390 FUN ROBO SY
- ECE Elective (4 credits) (see catalog)
- ADDITIONAL RELATED CREDITS

### Total Engr Credits ≥ 46

## Math/Science

### Required for All Students

- MTH1111 MODSIM
- SCI1111 MODSIM
- *PHYSICS FOUNDATION
- BIOLOGY
- CHEM/MATSCI
- PROBSTAT

### AHS/E!

- AHS FOUNDATION
- AHSE 1515 PRODS & MKTS

### QEA I & QEA II (16 Total Credits)

- (8 MTH, 4 SCI, 4 ENGR distributed totals)

- Content Covered:
  - MTH2210 LIN I
  - MTH2220 LIN II
  - PHYSICS FOUNDATION
  - ENGR2410 SIG SYS
  - ENGR2340 DYNAMICS

### AHS Concentration

- 12 credits of AHS coursework
  - OR
  - 8 credits of AHS
    - + AHSE3190 Preppstone
    - + AHSE4190 Capstone
  
### Entrepreneurship Concentration

- 12 credit sequence of E! courses—at least 4 must come from either or combination of Iterate &/or Launch (see catalog for detailed options)

### Required Math &/or Science for Each Concentration

- Req’d MATH &/OR SCIENCE FOR EACH CONCENTRATION

### Total Math/Sci Credits ≥ 30

### At Least 10 Must Be MTH

### Total Engin Cred ≥ 46

### Total AHS Credits ≥ 12

### Total of AHS +E! ≥ 28

### Total Credits Needed for Graduation: 120

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<table>
<thead>
<tr>
<th>FOUNDATION MATH CONTENT REQUIREMENTS</th>
<th>SATISFIES PROBSTAT REQUIREMENT</th>
<th>SATISFIES BIO REQUIREMENT</th>
<th>SATISFIES CHEM/MATSCI REQUIREMENT</th>
<th>SATISFIES PHYSICS REQUIREMENT</th>
<th>SATISFIES DESIGN DEPTH REQUIREMENT</th>
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</thead>
<tbody>
<tr>
<td>2 CR VECTOR CALCULUS AND/OR MULTIVARIABLE CALCULUS: MTH2220 LIN II OR DES ALT</td>
<td>MTH2130 PROBSTAT</td>
<td>SCI1210 PRINCIPLES OF MODERN BIO W/LAB</td>
<td>SCI1310 INTRO TO CHEMISTRY W/LAB</td>
<td>SCI1112 ELECTRICITY AND MAGNETISM</td>
<td>ENGR3240 QUANTITATIVE ENGINEERING DESIGN</td>
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<tr>
<td>2 CR DIFFERENTIAL EQUATIONS: MTH2210 LIN I OR DES ALT</td>
<td>MTH2131/ENGR3531 DATA SCIENCE</td>
<td>SCI1220 HUMAN GENETICS AND GENOMICS W/LAB</td>
<td>SCI1399 SPECIAL TOPICS IN CHEMISTRY</td>
<td>SCI1130 MECHANICS</td>
<td>ENGR3250 INTEGRATED PRODUCT DESIGN</td>
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<tr>
<td>2 CR LINEAR ALGEBRA: MTH2210 LIN I OR MTH2220 LIN II OR DES ALT</td>
<td>MTH2132/SCI2032 BAYESIAN INFERENCE AND REASONING</td>
<td>SCI1230 THINK LIKE A BIOLOGIST W/LAB</td>
<td>SCI1410 OR SCI1410A MATERIALS SCIENCE &amp; SOLID STATE CHEMISTRY W/LAB</td>
<td>SCI1199 FOUNDATION TOPIC IN PHYSICS</td>
<td>ENGR3252 TECHNOLOGY, ACCESSIBILITY, AND DESIGN</td>
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<td>MTH2133/ENGR3533 COMPUTATIONAL BAYESIAN STATISTICS</td>
<td>SCI1240 DESIGNING BETTER DRUGS W/LAB</td>
<td>SCI2310 ENVIRONMENTAL ANALYSIS AND SCIENCE</td>
<td>SCI3130 ADVANCED CLASSICAL MECHANICS (WITH INSTRUCTOR PERMISSION)</td>
<td>ENGR3260 DESIGN FOR MANUFACTURING</td>
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<td></td>
<td>MTH2134/ENGR2134 REGIONAL ANALYSIS IN DEVELOPMENT</td>
<td>SCI1250 SIX MICROBES THAT CHANGED THE WORLD W/LAB</td>
<td></td>
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<td>ENGR3270 REAL PRODUCTS, REAL MARKETS</td>
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<td>MTH2135/ENGR3635 NEUROTECHNOLOGY, BRAINS AND MACHINES</td>
<td>SCI1260 THE INTERSECTION OF BIOLOGY, ARTS, AND TECHNOLOGY</td>
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<td></td>
<td>ENGR3290 AFFORDABLE DESIGN AND ENTREPRENEURSHIP</td>
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<tr>
<td>DESIGNATED ALTERNATIVE</td>
<td>AN INTERMED OR ADV BIOLOGY COURSE IF STUDENT RECEIVED A SCORE OF 4 OR 5 ON AP BIO EXAM</td>
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<td>APPROVED ENGR3299 SPECIAL TOPICS IN DESIGN ENGINEERING COURSE</td>
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<td></td>
<td>AN INTERMED OR ADV BIOLOGY COURSE IF STUDENT RECEIVED A SCORE OF 3 ON AP BIO EXAM AND PASSES ORAL ASSESSMENT</td>
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Special Topics courses (numbered XX99) that meet specific degree and/or program requirements are so noted in the Semester Course Offerings List. Questions about a particular course should be directed to the instructor on record or the Registrar’s Office.