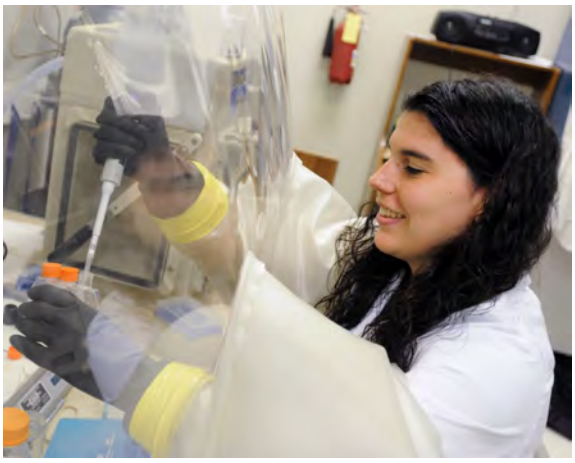
THE UNIVERSITY OF ALABAMA IN HUNTSVILLE



# Chemical Engineering

*Chemical Engineers* apply the principles of chemistry and engineering to solve problems involving the production or use of chemicals, thereby building a bridge between science and manufacturing. They work in petrochemical (refining petroleum products), biotechnical (improving agriculture and food production), materials (nanotechnology and catalysis) and pharmaceutical (mass production of medicine) fields to deliver products safely and economically on a mass scale. Chemical engineers apply principles of physics, mathematics, and mechanical and electrical engineering. They must be aware of all aspects of chemical manufacturing, how it affects the environment, the safety of workers and customers, and takes measures to safeguard those areas.

## Highlights

- Specialization in either Materials or Biotechnology.
- Small program with unique faculty relationships.
- Students co-op with 3M, Nucor Steel, Southern Company, and many more.
- Average median salary in 2012: $94,350.

"This photo was taken in the wiring department. I was working on a prototype wiring harness and making modifications to the engineering drawings. The tasks that I am given are challenging and meaningful. I can honestly say that I enjoy going to work each day."

Jonathan Savory // Decatur, Alabama
**Senior, Chemical ENGINEERING**

**GO.**

**LEARN.**

**BE.**

# Academic Checksheet

COLLEGE OF ENGINEERING
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# Chemical Engineering
## 2015/2016 (129 Hours)

**Student A#** _____ **Student Name (Last, First MI)** _____

| Semester, Transfer or AP | Grade | Course Number | Cr Hrs | Course Title | Prerequisites, Corequisites and/or Prerequisites with Concurrency | Offered: F=Fall S=Spr M=Sum |
|---|---|---|---|---|---|---|
| | | | | **English - 6 hours** | | |
| | | EH 101 | 3 | Freshman Composition I | Placement | FSM |
| | | EH 102 | 3 | Freshman Composition II | EH 101 | FSM |
| | | | | **Mathematics - 15 hours** | | |
| | | MA 171 | 4 | Calculus A | MA 113 or MA 115 or Level III Placement | FSM |
| | | MA 172 | 4 | Calculus B | MA 171 | FSM |
| | | MA 201 | 4 | Calculus C | MA 172 | FSM |
| | | MA 238 | 3 | Applied Differential Equations | Prereq w/Con: MA 201 | FSM |
| | | | | **Chemistry - 18 hours** | | |
| | | CH 121 | 3 | General Chemistry I | Plcmt or CH 101, MA 113 or 115, Prereq w/Con: MA 171, Coreq: CH 125 | FSM |
| | | CH 125 | 1 | General Chemistry Lab I | Coreq: CH 121 | FSM |
| | | CH 123 | 3 | General Chemistry II | CH 121, Prereq w/Con: CH 126 | FSM |
| | | CH 126 | 1 | General Chemistry Lab II | Coreq: CH 123 | FSM |
| | | CH 331 | 3 | Organic Chemistry I | CH 123, CH 126 | FSM |
| | | CH 335 | 1 | Organic Chemistry Lab I | Prereq w/Con: CH 331 | FSM |
| | | CH 332 | 3 | Organic Chemistry II | CH 331 | FSM |
| | | CH 341 | 3 | Physical Chemistry I | CH 123, MA 201, PH 112 | F |
| | | | | **Physics - 8 hours** | | |
| | | PH 111 | 3 | General Physics w/Calculus I | MA 171, Coreq: 114 | FSM |
| | | PH 114 | 1 | General Physics Lab I | Coreq: PH 111 | FSM |
| | | PH 112 | 3 | General Physics w/Calculus II | MA 172, PH 111, Coreq: 115 | FSM |
| | | PH 115 | 1 | General Physics Lab II | Coreq: PH 112 | FSM |
| | | | | **Biology - 3 hours** | | |
| | | BYS 311 | 3 | Intro to Molecular Biological Systems | CH 331 | S |
| | | | | **History, Social & Behavioral Sciences, Humaities & Fine Arts - 18 hours** | | |
| | | | 3 | History | HY 103, HY 104, HY 221, or HY 222 | FSM |
| | | | 3 | Literature | EH 207 or EH 208 | FSM |
| | | | 3 | Fine Art | ARH 100, ARH 101, ARH 103, CM 122, MU 100, or ARS 160 | FSM |
| | | | 3 | Social & Behavioral Science | For more information on HSBS/HFA Requirements: http://www.uah.edu/images/colleges/engineering/CUE2%20Files/Forms/HSBS_HFA_Requirements_05202014.pdf | FSM |
| | | | 3 | Sequence Course (HY or EH) | | FSM |
| | | | 3 | HSBS/HFA | | FSM |
| | | | | **First-Year Engineering - 4 hours** | | |
| | | FYE 101 | 1 | First-Year Experience for Engineers | None | FS |
| | | ENG 101 | 3 | Computing for Engineers | Prereq w/Con: MA 171 | SM |
| | | | | **Chemical Engineering Option - 40 hours** | | |
| | | CHE 201 | 2 | Intro to Chemical Engineering Processes | ENG 101 | FS |
| | | EE 213 | 3 | Electrical Circuit Analysis I | Prereq w/Con: PH 112, MA 201 | FSM |
| | | CHE 244 | 3 | Intro to Chemical Engineering Systems | PH 111, CH 123, CHE 201, MA 201 | S |
| | | MAE 271 | 3 | Statics | ENG 101, PH 111, Prereq w/Con: MA 201 | FSM |
| | | CHE 294 | 3 | Nature & Properties of Materials | CH 121, PH 111 | F |
| | | CHE 295 | 1 | Nature & Properties of Materials Lab | Prereq w/Con: CHE 294 | F |
| | | CHE 342 | 3 | Transport Phenomena | CH 341, Prereq w/Con: CHE 244, MAE 310 | S |
| | | CHE 344 | 3 | Chemical Engineering Thermodynamics | CH 341, Prereq w/Con: CHE 244 | S |
| | | MAE 310 | 3 | Fluid Mechanics I | MA 238, MAE/CE 271 | FSM |
| | | CHE 347 | 3 | Quantitative Modeling for Chemical Engrs | Prereq w/Con: CHE 201, MA 238 | F |
| | | CHE 439 | 2 | Unit Operations Lab I | CHE 295, Prereq w/Con: CHE 441, CHE 446 | F |
| | | CHE 440 | 2 | Unit Operations Lab II | CHE 439, CHE 441, CHE 443 | S |
| | | CHE 441 | 3 | Chemical Kinetics & Reactor Design | CHE 344, CHE 347 | F |
| | | CHE 443 | 3 | Mass Transfer Operations | CHE 342, CHE 344, MAE 310 | F |
| | | CHE 445 | 3 | Chemical Process Control | CHE 441 | S |
| | | CHE 446 | 3 | Analysis & Design of Transport Equipment | CHE 342, Prereq w/Con: CHE 443 | F |
| | | CHE 448 | 3 | Chemical Engineering Design | CHE 441, CHE 443, CHE 446, Prereq w/Con:CHE 445 | S |
| | | CHE 485 | 3 | Process Safety and Toxicology | Prereq w/Con: CHE 448 | S |
| | | | | **Chemical Engineering Electives - 9 hours** | | |
| Select One Con Biotech | | CH 361 | 3 | General Biochemistry I | BYS 311, CH 332, CH 335 | FSM |
| Select One Con Biotech | | CHE 460 | 3 | Introduction to Bioprocess Engineering | CH 361 | F |
| Select One Con Biotech | | CHE 461 | 3 | Bioseparations | CHE 460 | S |
| Select One Con Materials | | CH 440 | 3 | Polymer Synthesis & Characterization | CH 331 | F |
| Select One Con Materials | | CHE 494 | 3 | Applied Materials Engineering | CHE 294, CHE 344 | S |
| Select One Con Materials | | CHE 495 | 3 | Polymer Engineering | CH 341, CH 440 | F |

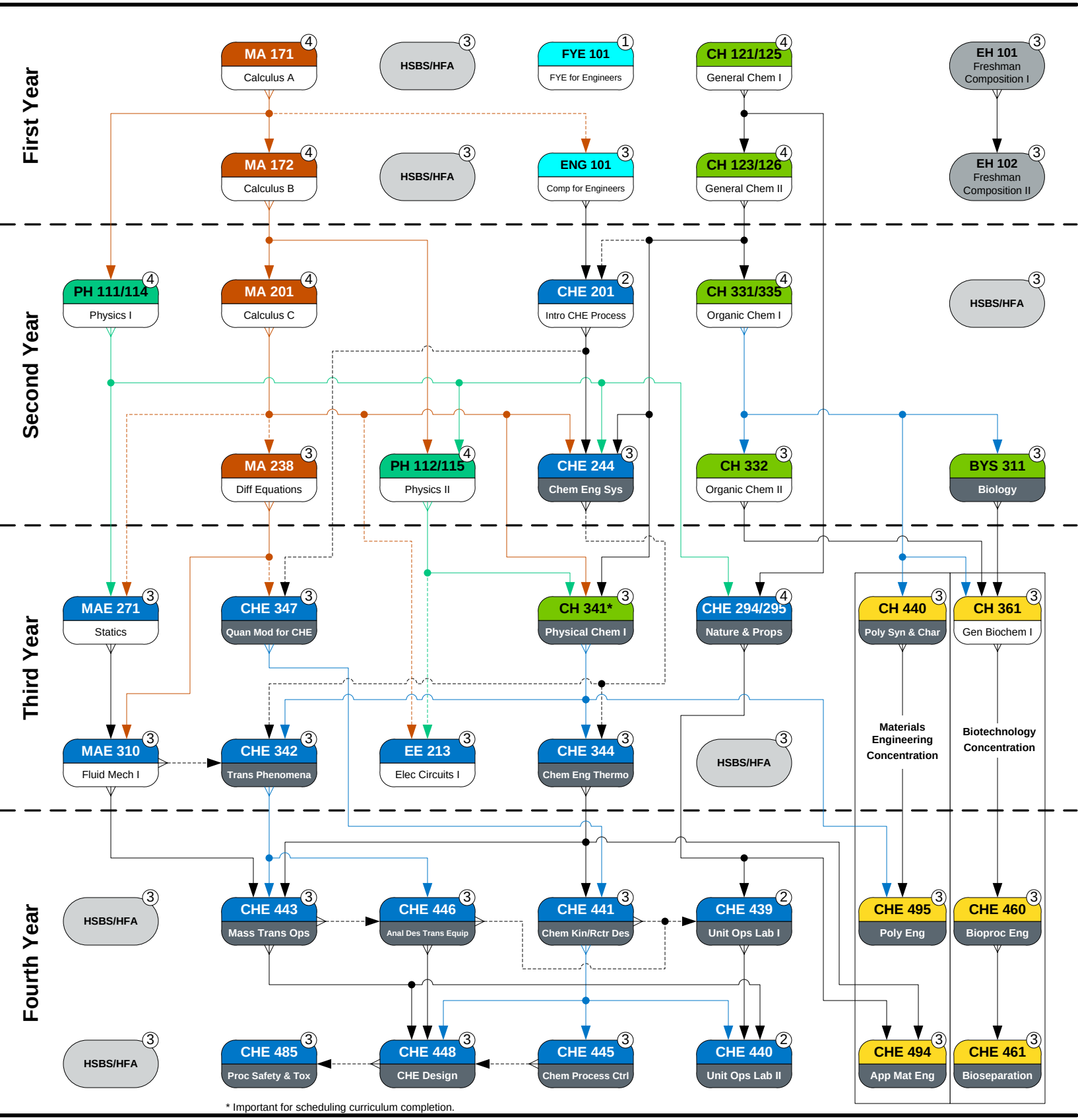
***All prerequisite classes must be completed with a "C-" or higher grade.***
***The Catalog is the final authority for all degree requirements.***

Updated: 5/7/2015

# Academic Flowchart

COLLEGE OF ENGINEERING
THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

# Chemical Engineering
## 2015/2016 (130 Hours)




* Important for scheduling curriculum completion.

**Legend** Updated: 5/5/15

- Mathematics
- Physics
- Chemistry / Biology
- First Year Engineering
- Chemical Engineering Option
- Concentration Electives
- Freshman Comp
- History, Social & Behavioral Science Humanity & Fine Art
- Offered only in semester listed
- (3) Credit Hours
- → Prerequisite
- ⇢ Prereq w/concurrency

COLLEGE OF ENGINEERING
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# Chemical Engineering Department: 4-Year Rolling Class Schedule, Fall 2015 - Spring 2019*

| | Fall 2015 | Anticipated Sections | Spring 2016 | Anticipated Sections | Fall 2016 | Spring 2017 | Fall 2017 | Spring 2018 | Fall 2018 | Spring 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| **CHE 197** Intro to Chem Eng Pro | Y | 1 | N | 0 | N | N | N | N | N | N |
| **CHE 198** Comp Tools for ChEng | N | 0 | Y | 1 | N | N | N | N | N | N |
| **CHE 201** Intro to Chem Eng Pro | N | 0 | N | 0 | Y | Y | Y | Y | Y | Y |
| **CHE 244** Intro to CHE Systems | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 294** Nature/Prop of Materials | Y | 1 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 295** Nature/Prop of Matrls Lab | Y | 3 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 342** Transport Phenomena | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 344** Chem Eng Thermo | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 347** Quantitative Modeling | Y | 1 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 439** Unit Operations I | Y | 2 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 440** Unit Operations II | N | 0 | Y | 3 | N | Y | N | Y | N | Y |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **CHE 441**<br>Chem Kinetics/Reactor Des | Y | 1 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 443**<br>Mass Transfer Operations | Y | 1 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 445**<br>Chemical Process Control | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 446**<br>Analy/Des of Trans Equip | Y | 1 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 448**<br>Chemical Eng Design | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 460**<br>Intro to Bioprocess Eng | Y | 1 | N | 0 | Y | N | Y | N | Y | N |
| **CHE 461**<br>Bioseparations | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 485**<br>Process Safety/Toxicology | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 494**<br>Applied Materials Engineering | N | 0 | Y | 1 | N | Y | N | Y | N | Y |
| **CHE 495**<br>Polymer Engineering | Y | 1 | N | 0 | Y | N | Y | N | Y | N |

**Legend**

| | |
|---|---|
| Y | Course will be offered in designated term. |
| E | Course is expected to be offered in designated term, but availability will be determined by faculty availability and budget. |
| N | Course will not be offered in designated term. |
| D | Course may be made available given appropriate demand or interest. |

* UAH College of Engineering will make every effort to adhere to the class plan schedule, but it reserves the right to make necessary adjustments based on budget and faculty availability.

# COLLEGE OF ENGINEERING

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

## Center for Undergraduate Engineering Education

Engineering Building 157

(256) 824-6877 // engineering@uah.edu

uah.edu/engineering