## **CHEMICAL ENGINEERING OPTION**

## This option is offered within the following major(s):

· Chemistry - College of Science (http://catalog.oregonstate.edu/ college-departments/science/chemistry/chemistry-ba-bs-hba-hbs)

The Chemical Engineering option offers selected chemical engineering concepts that may enhance career opportunities in areas such as electronics, polymers, and biotechnology, or prepare students for graduate studies in chemistry or related fields. Students can earn a BS degree in Chemistry in four years while targeting a career direction. This option includes nine courses in basic engineering and chemical engineering including mass and fluid transport, reaction engineering, and separations processes.

The Chemical Engineering option is designed for the Track-Two BS degree in Chemistry.

The track-two core requirements are slightly modified for the Chemical Engineering option:

| Required/Reccomended for Core:  PH 211 *GENERAL PHYSICS WITH CALCULUS and *GENERAL PHYSICS WITH CALCULUS (Required)  CH 213 and *GENERAL PHYSICS WITH CALCULUS (Required)  CH 462 *EXPERIMENTAL CHEMISTRY II (Recommended)  Chemical Engineering Option Requirements  CHE 211 (Terminated 201101) 4  CHE 212 (Terminated 201101) 4  CHE 411 MASS TRANSFER OPERATIONS 4  CHE 412 (Terminated 200901) 3  CHE 443 CHEMICAL REACTION ENGINEERING 4  ME 331 INTRODUCTORY FLUID MECHANICS 4  ME 332 HEAT TRANSFER 4  MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4  Select one of the following: 3-4  CH 401 RESEARCH OR CHE 401 RESEARCH  OF CHE 401 RESEARCH  CHE 213 (Terminated 200901)  CHE 311 THERMODYNAMICS  CHE 312 CHEMICAL ENGINEERING THERMODYNAMICS  CHE 331 TRANSPORT PHENOMENA I  CHE 332 TRANSPORT PHENOMENA II  CHE 334 THEMICAL PROCESS DYNAMICS AND SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE OF ENGR 213 STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL  ENGR 321 INTRODUCTION TO MATERIALS SCIENCE | Code                                     | Title   | Hours |  |
|--|--|---|-------|--|
| & PH 212 and *GENERAL PHYSICS WITH CALCULUS & PH 213 and *GENERAL PHYSICS WITH CALCULUS (Required)  CH 462 ^EXPERIMENTAL CHEMISTRY II (Recommended)  Chemical Engineering Option Requirements  CHE 211 (Terminated 201101) 4  CHE 212 (Terminated 201101) 4  CHE 411 MASS TRANSFER OPERATIONS 4  CHE 412 (Terminated 200901) 3  CHE 443 CHEMICAL REACTION ENGINEERING 4  ME 331 INTRODUCTORY FLUID MECHANICS 4  ME 332 HEAT TRANSFER 4  MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4  Select one of the following: 3-4  CH 401 RESEARCH or CHE 401 RESEARCH  CHE 213 (Terminated 200901)  CHE 311 THERMODYNAMICS  CHE 312 CHEMICAL ENGINEERING THERMODYNAMICS  CHE 331 TRANSPORT PHENOMENA I  CHE 332 TRANSPORT PHENOMENA II  CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE or ENGR 213STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL  | Required/Reccomended for Core:           |   |       |  |
| Chemical Engineering Option Requirements  CHE 211 (Terminated 201101) 4  CHE 212 (Terminated 201101) 4  CHE 411 MASS TRANSFER OPERATIONS 4  CHE 412 (Terminated 200901) 3  CHE 443 CHEMICAL REACTION ENGINEERING 4  ME 331 INTRODUCTORY FLUID MECHANICS 4  ME 332 HEAT TRANSFER 4  MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4  Select one of the following: 3-4  CH 401 RESEARCH 0r CHE 401 RESEARCH  CHE 213 (Terminated 200901)  CHE 311 THERMODYNAMICS  CHE 312 CHEMICAL ENGINEERING THERMODYNAMICS  CHE 332 TRANSPORT PHENOMENA I  CHE 332 TRANSPORT PHENOMENA II  CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE 0r ENGR 213STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL   | & PH 212                                 | and *GENERAL PHYSICS WITH CALCULUS and *GENERAL PHYSICS WITH CALCULUS |       |  |
| CHE 211 (Terminated 201101) 4 CHE 212 (Terminated 201101) 4 CHE 411 MASS TRANSFER OPERATIONS 4 CHE 412 (Terminated 200901) 3 CHE 443 CHEMICAL REACTION ENGINEERING 4 ME 331 INTRODUCTORY FLUID MECHANICS 4 ME 332 HEAT TRANSFER 4 MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4 Select one of the following: 3-4 CH 401 RESEARCH OR CHE 401 RESEARCH CHE 213 (Terminated 200901) CHE 311 THERMODYNAMICS CHE 312 CHEMICAL ENGINEERING THERMODYNAMICS CHE 331 TRANSPORT PHENOMENA I CHE 332 TRANSPORT PHENOMENA II CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION CHE 444 THIN FILM MATERIALS PROCESSING CHE 445 POLYMER ENGINEERING AND SCIENCE OR ENGR 213 STRENGTH OF MATERIALS CHE 461 PROCESS CONTROL  | CH 462                                   | ^EXPERIMENTAL CHEMISTRY II (Recommended                               | d)    |  |
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| ME 331 INTRODUCTORY FLUID MECHANICS 4 ME 332 HEAT TRANSFER 4 MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4 Select one of the following: 3-4 CH 401 RESEARCH   | CHE 412                                  | (Terminated 200901)   | 3     |  |
| ME 332 HEAT TRANSFER 4 MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4 Select one of the following: 3-4 CH 401 RESEARCH or CHE 401 RESEARCH CHE 213 (Terminated 200901) CHE 311 THERMODYNAMICS CHE 312 CHEMICAL ENGINEERING THERMODYNAMICS CHE 331 TRANSPORT PHENOMENA I CHE 332 TRANSPORT PHENOMENA II CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION CHE 444 THIN FILM MATERIALS PROCESSING CHE 445 POLYMER ENGINEERING AND SCIENCE or ENGR 213STRENGTH OF MATERIALS CHE 461 PROCESS CONTROL  | CHE 443                                  | CHEMICAL REACTION ENGINEERING   | 4     |  |
| MTH 256 APPLIED DIFFERENTIAL EQUATIONS 4 Select one of the following: 3-4  CH 401 RESEARCH   or CHE 401 RESEARCH   CHE 213 (Terminated 200901)  CHE 311 THERMODYNAMICS  CHE 312 CHEMICAL ENGINEERING THERMODYNAMICS  CHE 331 TRANSPORT PHENOMENA I  CHE 332 TRANSPORT PHENOMENA II  CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE   or ENGR 213STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL  | ME 331                                   | INTRODUCTORY FLUID MECHANICS  | 4     |  |
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| CHE 331 TRANSPORT PHENOMENA I CHE 332 TRANSPORT PHENOMENA II CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION CHE 444 THIN FILM MATERIALS PROCESSING CHE 445 POLYMER ENGINEERING AND SCIENCE or ENGR 213STRENGTH OF MATERIALS CHE 461 PROCESS CONTROL  | CHE 311                                  | THERMODYNAMICS  |       |  |
| CHE 332 TRANSPORT PHENOMENA II  CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE  or ENGR 213STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL   | CHE 312                                  | CHEMICAL ENGINEERING THERMODYNAMICS                                   |       |  |
| CHE 361 CHEMICAL PROCESS DYNAMICS AND SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE or ENGR 213STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL  | CHE 331                                  | TRANSPORT PHENOMENA I   |       |  |
| SIMULATION  CHE 444 THIN FILM MATERIALS PROCESSING  CHE 445 POLYMER ENGINEERING AND SCIENCE  or ENGR 213STRENGTH OF MATERIALS  CHE 461 PROCESS CONTROL   | CHE 332                                  | TRANSPORT PHENOMENA II  |       |  |
| CHE 445 POLYMER ENGINEERING AND SCIENCE or ENGR 213STRENGTH OF MATERIALS CHE 461 PROCESS CONTROL   | CHE 361                                  |   |       |  |
| or ENGR 213STRENGTH OF MATERIALS CHE 461 PROCESS CONTROL   | CHE 444                                  | THIN FILM MATERIALS PROCESSING  |       |  |
| CHE 461 PROCESS CONTROL  | CHE 445                                  | POLYMER ENGINEERING AND SCIENCE                                       |       |  |
| ***************************************  | or ENGR 21                               | or ENGR 213STRENGTH OF MATERIALS                                      |       |  |
| ENGR 321 INTRODUCTION TO MATERIALS SCIENCE   | CHE 461                                  | PROCESS CONTROL   |       |  |
|  | ENGR 321                                 | INTRODUCTION TO MATERIALS SCIENCE                                     |       |  |

- **Baccalaureate Core Course**
- Writing Intensive Course (WIC)

Option Code: 303

**Total Hours** 34-35