

Double Major Programs: Molecular Biology and Genetics / Chemical Engineering

| | MBG | | | MBG - CHE | | | CHE - MBG | | | CHE | | |
|-------------------------|-------------------|--------------|--------------|------------------|--------------|--------------|-----------------------|--------------|--------------|-----------------------|--------------|-----------|
| | Courses | Credits | ECTS | Courses | Credits | ECTS | Courses | Credits | ECTS | Courses | Credits | ECTS |
| First semester | BIO 101 | 3 | 5 | BIO 101 | 3 | 5 | Math 101 | 4 | 6 | Math 101 | 4 | 6 |
| | BIO 111 | 1 | 1 | BIO 111 | 1 | 1 | Chem 103 | 3 | 7 | Chem 103 | 3 | 7 |
| | Chem 103 | 3 | 7 | Chem 103 | 3 | 7 | Chem 109 ^A | 1 | 5 | CmpE 150 | 3 | 5 |
| | Chem 109 | 1 | 2 | Chem 109 | 1 | 2 | CmpE 150 | 3 | 6 | EC 101 | 3 | 6 |
| | Math 101 | 4 | 6 | Math 101 | 4 | 6 | EC 101 | 3 | 2 | Chem 109 ^A | 1 | 2 |
| | Phys 101* | 4 | 8 | Phys 101* | 4 | 8 | ChE 110 | 3 | 5 | ChE 110 | 3 | 5 |
| | 16 | 29 | | 16 | 29 | | 17 | 31 | | 17 | 31 | |
| Second semester | BIO 102 | 3 | 5 | BIO 102 | 3 | 5 | Math 102 | 4 | 6 | Math 102 | 4 | 6 |
| | BIO 106 | 2 | 3 | BIO 106 | 2 | 3 | Phys 121 | 4 | 8 | Phys 121 | 4 | 8 |
| | Chem 104 | 3 | 6 | Chem 104 | 3 | 6 | Chem 104 | 3 | 6 | Chem 104 | 3 | 6 |
| | Math 102 | 4 | 6 | Math 102 | 4 | 6 | EC 102 | 3 | 6 | EC 102 | 3 | 6 |
| | Phys 130* | 4 | 7 | Phys 130* | 4 | 7 | HSS | 3/4 | 5 | HSS | 3/4 | 5 |
| | HSS | 3 | 4 | HSS | 3 | 4 | | | | | | |
| | 19 | 31 | | 19 | 31 | | 17/18 | 31 | | 17/18 | 31 | |
| Third Semester | BIO 201 | 3 | 3 | Math 201 | 4 | 5 | Math 201 | 4 | 5 | Math 201 | 4 | 5 |
| | BIO 203/Math 344* | 3 | 5 | Phys 201* | 4 | 6 | Phys 201* | 4 | 6 | Phys 201 | 4 | 6 |
| | Chem 203 | 1 | 3 | Chem 221&203/24 | 5/4 | 8/6 | Chem 241/221&20 | 4/5 | 6/8 | Chem 241 | 4 | 6 |
| | Chem 221 | 4 | 5 | ChE 201 | 3 | 5 | ChE 201 | 3 | 5 | ChE 201 | 3 | 5 |
| | Phys 201* | 4 | 6 | ChE 211 | 4 | 5 | ChE 211 | 4 | 5 | ChE 211 | 4 | 5 |
| | Hist 105/Hum 101* | 3/4 | 5/6 | EC 101 | 3-Jan | 6 | TK 221 | 2 | 3 | TK 221 | 2 | 3 |
| | TK 221 | 2-Jan | 3 | BIO 201 | 3-Jan | 3 | ChE 203 ^{AA} | 1 | 2 | ChE 203 ^{AA} | 1 | 2 |
| | | 20/21 | 30/31 | | 25/26 | 36/38 | | 25/26 | 37/39 | TOTAL | 22 | 32 |
| Fourth Semester | BIO 252 | 3 | 6 | Math 202 | 4 | 7 | Math 202 | 4 | 7 | Math 202 | 4 | 7 |
| | BIO 254 | 3 | 6 | ME 210 | 3 | 5 | ME 210 | 3 | 5 | ME 210 | 3 | 5 |
| | Math 201 | 4 | 5 | ChE 202 | 3 | 4 | ChE 202 | 3 | 4 | ChE 202 | 3 | 4 |
| | CMPE*** | 3 | 5 | ChE 232 | 3 | 5 | ChE 232 | 3 | 5 | ChE 232 | 3 | 5 |
| | Hist 106/Hum 102* | 3/4 | 5/6 | BIO 252 | 3 | 3 | TK 222 | 2 | 3 | ChE 222 | 3 | 4 |
| | TK 222 | 2 | 3 | BIO 254 | 3 | 6 | BIO 102 | 3 | 5 | TK 222 | 2 | 3 |
| | | 18/19 | 30/31 | | 25 | 41 | | 21/22 | 34 | | 18 | 28 |
| Fifth Semester | BIO 301 | 4 | 6 | ChE 321 | 4 | 7 | ChE 321 | 4 | 7 | ChE 321 | 4 | 7 |
| | BIO 331 | 3 | 6 | ChE 333 | 3 | 5 | ChE 333 | 3 | 5 | ChE 333 | 3 | 5 |
| | BIO 333 | 3 | 6 | TK 221 | 2 | 3 | ChE 383 | 3 | 5 | ChE 383 | 3 | 5 |
| | BIO 353 | 4 | 5 | BIO 301 | 4 | 6 | ChE 353 | 3 | 5 | ChE 353 | 3 | 5 |
| | BIO 355 | 3 | 4 | BIO 331 | 3 | 6 | BIO 201 | 3 | 3 | CC | 3/4 | 5 |
| | HTR 311 | 2 | 3 | BIO 333 | 3 | 6 | BIO 301 | 4 | 6 | HTR 311 | 2 | 3 |
| | | 19 | 30 | | 26 | 42 | | 23 | 37 | | 18/19 | 30 |
| Sixth Semester | BIO 302 | 4 | 6 | ChE 302 | 3 | 5 | ChE 302 | 3 | 5 | ChE 302 | 3 | 5 |
| | BIO 308 | 1 | 2 | ChE 334 | 4 | 6 | ChE 334 | 4 | 6 | ChE 334 | 4 | 6 |
| | BIO 310 | 4 | 6 | ChE 342 | 4 | 6 | ChE 342 | 4 | 6 | ChE 342 | 4 | 6 |
| | BIO 322 | 1 | 2 | ChE 386 | 3 | 5 | ChE 386 | 3 | 5 | ChE 386 | 3 | 5 |
| | BIO 342 | 3 | 6 | BIO 302 | 4 | 6 | BIO 252 | 3 | 3 | HSS | 3/4 | 5 |
| | HTR 312 | 2 | 3 | BIO 308 | 1 | 2 | BIO 254 | 3 | 6 | HTR 312 | 2 | 3 |
| | HSS | 3 | 5 | BIO 310 | 4 | 6 | BIO 302 | 4 | 6 | | | |
| | 18 | 30 | | 25 | 39 | | 24 | 37 | | 19/20 | 30 | |
| Seventh semester | BIO 403 | 1 | 2 | ChE 433 | 3 | 8 | ChE 401 | 3 | 6 | ChE 401 | 3 | 6 |
| | BIO 407 | 2 | 3 | ChE 401 | 3 | 6 | ChE 433 | 3 | 8 | ChE 433 | 3 | 8 |
| | BIO Dep Elect. | 3 | 6 | BIO 403 | 1 | 2 | ChE 475 | 3 | 6 | ChE-- Elective | 3 | 0.625 |
| | Comp/Dep Elect. | 3 | 7 | BIO 407 | 2 | 3 | BIO 407 | 2 | 3 | ChE 475 | 3 | 6 |
| | Unres. Elective | 3 | 6 | Comp/MBG Elect. | 3 | 7 | BIO 331 | 3 | 6 | ChE-- Elective | 3 | 0.625 |
| | Unres. Elective | 3 | 6 | ChE 353 | 3 | 5 | BIO 353 | 4 | 5 | | | |
| | | | | HTR 311 | 2 | 3 | BIO 355 | 3 | 4 | | | |
| | | | | ChE 475 | 3 | 6 | HTR 311 | 2 | 3 | | | |
| | 15 | 30 | | 23 | 45 | | 23 | 41 | | 15 | 30/36 | |
| Eighth semester | BIO Dept. Elect. | 3 | 6 | ChE 492 | 4 | 8 | ChE 492 | 4 | 8 | ChE 492 | 4 | 8 |
| | BIO Dept. Elect. | 3 | 6 | ChE 462 | 3 | 7 | ChE 462 | 3 | 7 | ChE 462 | 3 | 7 |
| | HSS | 3 | 5 | HSS | 3 | 5 | BIO 310 | 4 | 6 | ChE-- Elective | 3 | 0.625 |
| | Unres. Elective | 3 | 6 | BIO Dept. Elect. | 3 | 6 | Comp/BIO Elect. | 3 | 7 | Unres. Elective | 3/4 | 5 |
| | Comp/Dep Elect. | 3 | 7 | BIO Dept. Elect. | 3 | 6 | BIO Dept. Elect. | 3 | 6 | CC | 3/4 | 5 |
| | | | | HTR 312 | 2 | 3 | HTR 312 | 2 | 3 | | | |
| | 15 | 30 | | 21 | 41 | | 19 | 37 | | 16/18 | 30/33 | |

TOTAL CREDITS: 140/142 : 240/242

180/181 : 304/306

169/172 : 285/287

142/147 : 242/251

OVERLOAD:

38/41

27/25

* Physics courses are one of the three series: Phys 101, Phys 130, Phys 201; Phys 101, Phys 102, Phys 201, Phys 202; Phys 121, Phys 201, Phys 202.

** HUM / HIST electives are any two of: HUM 101, HUM 102 OR HIST 105, HIST 106;

*** Computer Elective: CMPE 150, BIO 48B or higher-level computer elective course

**** When BIO 203 is offered in a semester, it should be taken instead of MATH 3

^Chem 109 may be taken either in the first semester or in the second semester.

^^ChE 203 may be taken either in the third semester or in the fourth semester.

Students may take either CHEM 241 or (CHEM 221 and CHEM 203)

Equivalent courses. Students may take either ChE 383 or BIO 203.