Sample Four-Year Plan for a BS in Engineering Physics
*Physical Chemistry Concentration*

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<th>Fall Semester</th>
<th>Spring Semester</th>
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| **Freshman Year** | Math 140 – 4 cr  
Physics 101** - 1 cr  
Physics 113 & 181 – 6 cr  
Gen Ed: WorldCulture – 3 cr  
English 101 – 3 cr  
(17 credits) | Math 141 – 4 cr  
Physics 114 & 182 – 6 cr  
First Year Seminar – 4 cr  
English 102 – 3 cr  
(17 credits) |
| **Sophomore Year** | * Physics 211 – 3 cr  
* Physics 281 – 3 cr  
Math 242 – 4 cr  
Chemistry 115 & 117 - 5cr | * Physics 214 – 3 cr  
Math 270 – 3 cr  
Chemistry 116 & 118 – 5 cr  
Engineering 104 – 3 cr  
Intermediate Seminar – 3 cr  
(17 credits) |
|       | Engineering 231 & 271 – 4 cr  
Chemistry 311 & 313 – 6 cr  
CS 110 - 4cr  
Gen Ed: Arts – 3 cr | Engineering 232 & 272 – 4 cr  
* Physics 312 – 3 cr  
* Physics 382 – 3 cr  
Gen Ed: SBS I – 3 cr  
(13 credits) |
| **Junior Year †** | * Physics 321 – 3 cr  
* Physics 421 – 3 cr  
Engineering Elective I – 3 cr  
Lab elective - 4 cr  
Gen Ed: SBS II – 3 cr  
(16 credits) | * Physics 322 – 3 cr  
Engineering Elective II - 3cr  
Chemistry 312 & 314 - 6 cr  
Gen Ed: Humanities – 3 cr  
(15 credits) |

* - Class may be offered only once a year.  
** - Recommended.  
† - The Writing Proficiency Requirement (WPR) is recommended to be completed at 60-75 credits. Please consult the WPR website:  
[www.umb.edu/academics/vpass/undergraduate_studies/writing_proficiency](http://www.umb.edu/academics/vpass/undergraduate_studies/writing_proficiency)

- This document is a suggested plan for the major. Students must meet with their faculty advisor each semester and refer to their degree audit to ensure adequate progress toward their degree.  
- Students are strongly advised to select general education courses which also satisfy the US and international diversity requirements  
See reverse side for more detailed information
Engineering Physics - Physical Chemistry Concentration
BS Course Number Guide

This course guide provides the detailed names of courses listed by number on the four-year plans. It is not a comprehensive list of courses for your major, or a substitute for an advising appointment! Consult with your faculty advisor when choosing courses, and check your degree audit regularly.

Chemistry 115 & 117 – Chemical Principles I Lecture & Lab
Chemistry 116 & 118 – Chemical Principles II Lecture & Lab
Chemistry 311 & 313 - Analytical Chemistry & Lab
Chemistry 312 & 314 - Physical Chemistry & Lab
CS 110 – Introduction to Computing
ENGIN 104 – Introduction to Electrical and Computer Engineering
ENGIN 231 & 271 – Circuit Analysis I and Circuit Lab I
ENGIN 232 & 272 – Circuit Analysis II and Circuit Lab II
Math 140 – Calculus I
Math 141 – Calculus II
Math 242 – Multivariable and Vector Calculus
Math 270 – Applied Ordinary Differential Equations
Physics 113 & 181 – Fundamentals of Physics I Lecture & Lab
Physics 114 & 182 – Fundamentals of Physics II Lecture & Lab
Physics 211 & 281 – Introduction to Contemporary Physics & Physics Lab I
Physics 214 – Thermodynamics
Physics 312 - Mechanics
Physics 321 – Theory of Electricity and Magnetism I
Physics 322 – Theory of Electricity and Magnetism II
Physics 382 – Intermediate Laboratory
Physics 421 – Atomic Physics and Introduction to Quantum Mechanics

LAB ELECTIVE - Select 1 from:
- ENGIN 241 Digital Systems with Lab
- ENGIN 304 Engineering Design
- ENGIN 365 Electronics I with Lab
- PHYSIC 298 Special Topics Laboratory
- PHYSIC 398 Special Topics Laboratory

ENGINEERING ELECTIVES - Select 2 from:
- ENGIN 202 Statics (Mechanical Engineering)
- ENGIN 211L Engineering Mathematics
- ENGIN 221 Strength of Materials I
- ENGIN 321 Signals and Systems
- ENGIN 322 Probability and Random Processes
- ENGIN 331 Fields & Waves
- ENGIN 332 Fields and Waves II
- ENGIN 346 Microcontrollers
- ENGIN 351 Fundamentals of Semiconductor Devices
- ENGIN 362 Fluid Mechanics
- ENGIN 366 Electronics II with Lab

Additional resources:
www.umb.edu/academics/vpass/undergraduate_studies/general_education_requirements
www.umb.edu/academics/course_catalog/search
www.umb.edu/academics/csm/student_success_center/degree_planning/math_placement