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| --- | --- | --- |
| Nanotechnology Sample Schedule Chemistry/Bioengineering Emphasis | | |
| **Title** | **Course** | **Units** |
| First Term | | |
| General Chemistry for Engineering 1 | CHEM 0960 | 3 |
| Introduction to Engineering Analysis | ENGR 0011 | 3 |
| Analytical Geometry & Calculus 1 | MATH 0220 | 4 |
| Physics for Science & Engineering 1 | PHYS 0174 | 4 |
| *Humanities/Social Sciences Elective\** | *H/SS Elective 1* | 3 |
| Freshman Seminar | ENGR 0081 | 0 |
| Term Units | | 17 |
| Second Term | | |
| General Chemistry for Engineering 2 | CHEM 0970 | 3 |
| Engineering Computing | ENGR 0012 | 3 |
| Analytical Geometry & Calculus 2 | MATH 0230 | 4 |
| Physics for Science & Engineering 2 | PHYS 0175 | 4 |
| *Humanities/Social Sciences Elective\** | *H/SS Elective 2* | 3 |
| Freshman Seminar | ENGR 0082 | 0 |
| Term Units | | 17 |
| Third Term | | |
| Organic Chemistry 1 | CHEM 0310 | 3 |
| Linear Circuits & Systems | ECE 0101 | 4 |
| Problem Solving in C++ | ECE 0301 | 3 |
| Statics & Mechanics of Materials 1 | ENGR 0135 | 3 |
| Matrices & Linear Algebra | MATH 0280 | 3 |
| Engineering Science Seminar | ENGSCI 1085 | 0 |
| Term Units | | 16 |
| Fourth Term | | |
| Introduction to Thermodynamics | BIOENG 1210 | 3 |
| Organic Chemistry 2 | CHEM 0320 | 3 |
| Materials Structures & Properties | ENGR 0022 | 3 |
| Analytical Geometry & Calculus 3 | MATH 0240 | 4 |
| Differential Equations | MATH 0290 | 3 |
| Lab Physics for Science & | PHYS 0219 | 2 |
| Engineering Science Seminar | ENGSCI 1085 | 0 |
| Term Units | | 18 |
| Fifth Term | | |
| Introduction to Nanotechnology & Nanoengineering | ENGR 0240 | 3 |
| Experimental Methods in MSE | MEMS 1010 | 3 |
| Introductory Cell Biology 1 | BIOENG 1070 | 3 |
| Foundations of Biology 1 | BIOSCI 0150 | 3 |
| *Bioengineering Elective 1* | *BIOENG* | 3 |
| Engineering Science Seminar | ENGSCI 1085 | 0 |
| Term Units | | 15 |
| Sixth Term | | |
| Introductory Cell Biology 2 | BIOENG 1071 | 4 |
| Foundations of Biology 2 | BIOSCI 0160 | 3 |
| *Bioengineering Workshop* | *BIOENG* | 1 |
| *Electrical and Computer Engineering Elective 1* | *ECE* | 3 |
| *Humanities/Social Sciences Elective\** | *H/SS Elective 3* | 3 |
| *Nanotechnology Elective 1* |  | 3 |
| Engineering Science Seminar | ENGSCI 1085 | 0 |
| Term Units | | 16 |
| Seventh Term | | |
| Micro/Nano Manufacturing | MEMS 1057 | 3 |
| *Bioengineering Elective 2* | *BIOENG* | 3 |
| *Nanotechnology Elective 2* |  | 3 |
| *Senior Design 1* |  | 3 |
| *Social Sciences Elective\** | *H/SS Elective 4* | 3 |
| Engineering Science Seminar | ENGSCI 1085 | 0 |
| Term Units | | 15 |
| Eighth Term | | |
| Probability & Statistics for Engineers | ENGR 0021 | 3 |
| *Humanities Elective\** | *H/SS Elective 6* | 3 |
| *Humanities/Social Sciences Elective \* ‡* | *H/SS Elective 5* | 3 |
| *Nanotechnology Elective 3* |  | 3 |
| *Senior Design 2* |  | 3 |
| Engineering Science Seminar | ENGSCI 1085 | 0 |
| Term Units | | 15 |
| Total Units | | 129 |
| 58 Minimum Engineering Units, 53 Minimum Math/Science Units | | |

Upper-Level Physics: Physics courses ≥ 3-credits with course numbers > 1000

BIOENG Workshop Options: BIOENG 0050: Workshop in Bioengineering Design (Fundamentals of SolidWorks) • BIOENG 0051: Workshop in Medical Devices (The Basics) • BIOENG 0052: Workshop in OpenSim • BIOENG 0053: Workshop in statistical Design of Experiments • BIOENG 0054: Workshop in Design for Manufacturability

+ A senior design course offered by one of the other SSOE engineering programs is required. Alternatively, may be ENGR 1050 Product Realization, or with preapproval, a senior design project arranged with a faculty mentor and taken as ENGSCI 1801.  
++ A semester-long research experience under the supervision of a faculty advisor at Pitt, not necessarily within the Swanson School of Engineering. Note that this requirement may also be fulfilled by participation in an undergraduate research program like the MCSI URP or the SURI during the summer semester.

‡A University designated writing intensive course

\*All Humanities and Social Science electives must be from the SSOE approved list. Two courses need to be in single area (see SSOE guidelines). The first-year engineering program requires two courses taken in English Composition (ENGCMP); these courses count as humanities courses.