

# Biomedical Engineering

## – Cell & Tissue with Illinois Tech

Total Major hours at Wheaton: 55  
Suggested hours per semester: 16-18

### Major Academic Plan (MAP) for Catalog Year 2021-2022

The catalog is the final authority on CATC and major requirements; this is intended as a tool for planning purposes.  
Student course sequencing may vary depending on course offerings and other variables.

<p><b>Fall Semester 1</b></p> <p>MATH 231: Calculus I<sup>1*</sup>            PHYS 231: Introductory Physics I<sup>F, 1*</sup>            CHEM 231: General Chemistry I<sup>F</sup>            ENGR 101: Intro. to Engineering (1)<sup>F</sup></p> <p>CORE 101: First Year Seminar            AHS 101: Wellness (2)</p>	<p><b>Spring Semester 2</b></p> <p>MATH 232: Calculus II*            PHYS 232: Introductory Physics II<sup>S*</sup>            CHEM 232: General Chemistry II<sup>S</sup></p> <p>ENGW 103: Writing</p>	<p><b>Summer 1</b></p> <p><i>Consider study, internship or research options –Wheaton In summer program, WIN (HoneyRock), non-major internship, summer research or other options that provide work experience, build your resume, or grow you personally.</i></p>
<p><b>Fall Semester 2</b></p> <p>PHYS 334: Computer Modeling of Physical Systems (2)<sup>F*</sup>            ENGR 201: Statics<sup>F*</sup>            CHEM 341: Organic Chemistry I<sup>F*</sup></p> <p>BITH or ARCH 211: Old Testament Language Core Competency</p>	<p><b>Spring Semester 2</b></p> <p>MATH 331: Vector Calculus (2)*            MATH 333: Differential Equations*</p> <p>BITH or ARCH 213: New Testament            COMM 101: Oral Communication (2)            Advanced Integrative Seminar<sup>2*</sup></p>	<p><b>Summer 2</b></p> <p><i>Consider study, internship or research options –Wheaton In summer program, WIN (HoneyRock), non-major internship, summer research or other options that provide work experience, build your resume, or grow you personally.</i></p>
<p><b>Fall Semester 3</b></p> <p>ENGR 204: Innovative Design in Engr.<sup>F*</sup>            PHYS 351: Analog Electronics (2)*</p> <p>BITH 315: Christian Thought*            Thematic Core Course<sup>2</sup>            Visual &amp; Performing Arts (2)</p>	<p><b>Spring Semester 3</b></p> <p>BME 315: Instrumentation &amp; Measurement Laboratory (2)<sup>3</sup>            BIOL 115: Human Biology (3)<sup>3</sup>            BIOL 117: Human Biology Lab (1)<sup>3</sup>            ENGR 394: Ethics Capstone (2)<sup>S*</sup></p> <p>Thematic Core Course (8)<sup>2</sup>            Visual &amp; Performing Arts (2)<sup>2</sup></p>	<p><b>Summer 3</b></p> <p><i>Consider study, internship or research options –Wheaton In summer program, WIN (HoneyRock), non-major internship, summer research or other options that provide work experience, build your resume, or grow you personally.</i></p>
<p>All courses below this line are based on completion at Illinois Tech.</p>		
<p><b>Fall Semester 4</b></p> <p>BME 100: Introduction to the Profession (2)            ECE 308: Signals and Systems (3)            BME 422: Mathematical Methods for Biomedical Engineers (3)            BME 433: Biomedical Engineering Applications of Statistics (3)            CHE 202: Material Energy Balances (3)</p>	<p><b>Spring Semester 4</b></p> <p>BIOL 403: Biochemistry            BME 301: Bio-fluid Mechanics (3)            BME 310: Bio Materials (3)            BME 320: Fluids Laboratory (1)            BME 335: Thermodynamics of Living Systems (3)            IPRO: IPRO Elective 1 (3)</p>	<p><b>Summer 4</b></p> <p>Consider study, internship or research options.</p>
<p><b>Fall Semester 5</b></p> <p>BME 405: Physiology Laboratory (2)            BME 418: Reaction Kinetics for BME (3)            BME 419: Introduction to Design Concepts in BME (2)            BME 453: Quantitative Physiology (3)            BME 482: Mass Transport for Biomedical Engineers (3)            BME: Technical Elective 1 (3)</p>	<p><b>Spring Semester 5</b></p> <p>BME 420: Design Concepts in BME (3)            BIOL 424: Quantitative Aspects of Cell &amp; Tissue Engineering (3)            BME: Technical Elective 2 (3)            IPRO: IPRO Elective 2 (3)            Fundamentals of Engineering Exam (0)</p>	<p><b>Summer 5</b></p>

## Notes or Special Guidance for Majors:

\*Course has prerequisite

<sup>F</sup> Fall only course

<sup>S</sup> Spring only course

<sup>#</sup> Offered every other year

<sup>1</sup> Classes that meet CATC Thematic Core tags: MATH 231 (AAQR), PHYS 231 (SP). Engineering majors should use the [Engineering checklist](#) for CATC.

<sup>2</sup> Engineering majors should carefully select CATC Thematic Core courses. In addition to the Themes already covered with required courses (AAQR and SP, see footnote 1), Social Inquiry (SI) and the Visual and Performing Arts (VPA or 2 of VPAV/VPAM/VPAT) must be taken. 4 of the 5 remaining themes must also be taken by Engineering majors. See the [Engineering checklist](#) for the full CATC requirements. Double tagged courses are strongly encouraged.

<sup>3</sup> These courses are taken in partnership with Illinois Tech while finishing Wheaton requirements.

-All Engineering MAPs are also located on the [Engineering Department webpage](#). Please contact the Engineering Coordinator, Jeff Yoder with questions. He can be reached at [jeff.yoder@wheaton.edu](mailto:jeff.yoder@wheaton.edu).