Congratulations on your acceptance into the Biomedical Sciences Major!

- One of the highest ACT/SAT scores and highest GPA’s of any major or program on campus
- Fastest Growing Major and Largest Declared Major on Marquette’s Campus
- One of a few Biomedical Sciences Programs in the Nation

Purpose of Presentation:

- Give you the rules to obtain your degree
- Help you plan for the future
- Understand your academic resources
- Use as your first academic advising appointment—save folder and bring to future appointments

Undergraduate Bulletin Online: [http://bulletin.marquette.edu/undergrad/](http://bulletin.marquette.edu/undergrad/)

- **University Information:** Mission, requirements, resources, colleges and programs
- **College of Health Sciences Information:** Policy, Programs, Student Groups
- **Biomedical Sciences (BISC) Information**
  - Courses, Curricular Plans, Requirements etc.

Biomedical Sciences (BISC): On this page

[http://bulletin.marquette.edu/undergrad/collegeofhealthsciences/departmentofbiomedicalsciences/](http://bulletin.marquette.edu/undergrad/collegeofhealthsciences/departmentofbiomedicalsciences/)

- Academic Performance
- Graduation Requirements
- Biomedical Sciences Major
- Curricula Information
  - Typical Program for Biomedical Sciences Majors
  - Typical Program for Biomedical Sciences Majors - Pre-Physician Assistant Studies
  - Typical Program for Biomedical Sciences Majors - Direct Admit Physical Therapy Students
  - Typical Program for Biomedical Sciences Majors - Pre-Dental Scholars
  - Typical Program for Biomedical Sciences Majors – STEM-MBA
- Biomedical Sciences Minor
- Disciplinary Honors Requirements
- Courses

**Area Credit Hours**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCC Requirements</td>
<td>30</td>
</tr>
<tr>
<td>Required Science Cognates</td>
<td>17-25</td>
</tr>
<tr>
<td>Statistics, Medical Ethics, Health &amp; Society Cognates</td>
<td>7-10</td>
</tr>
<tr>
<td>BISC Major</td>
<td>33</td>
</tr>
<tr>
<td><strong>TOTAL =</strong></td>
<td><strong>128 or more</strong></td>
</tr>
</tbody>
</table>
**Biomedical Sciences Major Overview**

**MCC Requirements**
(Complete presentation for review)
Standard requirements from the University, but some factors to keep in mind:
- Clinical vs non-clinical tracking
- Minor of interest
- Plans for direct-admit, early admission programs

May be some opportunity to overlap classes with the factors listed above
- But this would not impact class decisions until Sophomore year

**Required Science Cognates**
*Everything in **bold** is also typically required for clinical graduate and professional programs*
- 2 Biology Courses
  - BIOL 1001 and BIOL 1002
- 2 Chemistry Courses
  - CHEM 1001 and CHEM 1002
- 1 Organic Chemistry
  - CHEM 2111 or CHEM 2112 or BISC 2050 (Organic Chemistry for the Health Professions)
- One of the following lab science courses
  - Principles of Biological Investigation (BIOL 2001)
  - Concepts in Clinical Laboratory Medicine (CLLS 2200)
  - Molecular Diagnostics: Laboratory Techniques (CLLS 3160)
  - Diagnostics Technology (PHAS 7270; only for students admitted to the PA program)

**Required Statistics, Medical Ethics, and Health & Society Cognates**
- One of the following Statistics courses: MATH 1700, MATH 4720, MATH 4740, PSYC 2001, SOCI 2060
  - MATH 4720 or MATH 4740 are recommend for pre-med students
- One of the following Health & Society courses: BISC 4153, BISC 4170, BISC 4275, BISC 4381, BISC 4461, CLLS 2060, CMST 4500, COMM 4330, HEAL 1025, HEAL 1200, HEAL 1400, HEAL 2100, PSYC 3420, SOCI 3300, SOCI 3500, SOCI 3520, SOCI 3550, SOCI 3570, SOCI 4300, SOWJ 1001, SOWJ 2200, SOWJ 4700, SPAN 4715,
- One of the following Medical Ethics (1cr. Minimum): PHIL 4336, PHIL 4335, THEO 4450, PHAS 70245 (Only for those Accepted into PA)

**BISC Major Course Requirements** *(At least 33 BISC Major Credits—“C” or Better)*
- **Required Courses:**
  - Contemporary Issues in Biomedical Sciences
  - Human Anatomy
  - Biochemistry (BISC 2070 or BISC 3213)
  - Human Physiology

- **Anatomy and Systems Content Area** (One course, a maximum of 3 credits apply towards the major)
  - Head and Neck Anatomy
  - Principles of Human Embryology
  - Systems Neuroscience
  - Endocrinology
  - Functional Neuroanatomy
  - Human Microanatomy
Human Gross Anatomy
  * Must be enrolled in DPT or PA Program

- **Cell and Molecular Content Area** (Two courses, a minimum of 6 credits)
  Human Microbiology
  Molecular Pathology
  * Can be used for either Cell and Molecular or Diseases and Pathology, but not both
  Human and Applied Medical Genetics

- **Diseases and Pathology Content Area** (Two courses, a minimum of 6 credits)
  General Pathology
  Pharmacology
  Diseases of the Brain
  Outbreaks, Epidemics and Pandemics

- **BISC Electives** (5-6 credit hours to meet the 33 credits required for the BISC degree)
  - Students can choose from the list below as well as any course from the 3 content areas not previously used

### BISC Electives within Biomedical Sciences

- Introduction to Dentistry
  * Only for Pre-Dental Scholars
- Nutritional Aspects of Health
- Gross Anatomy for the Biomedical Sciences
- Evolution
- Science and Society
- Physiology in Depth
- Human Physiology Laboratory
- Advanced Pathology
- Microbiology Laboratory

### BISC Electives outside of Biomedical Sciences

- Experimental Genetics
- Experimental Cell Biology
- Experimental Neurobiology
- Experimental Physiology
- Experimental Molecular Biology
- Forensic Sciences

- Biology, Moral Behavior and Policy
  * Can fulfill the Health and Society Cognate or elective, but not both
- Advanced Biochemistry
- Advanced Cellular Genetics and Cancer
- Practical Cases in Medicine
- Advanced Systems Neuroscience
- Internship in Biomedical Sciences
- Independent Study in Biomedical Sciences
- General Histology
  * Only for Pre-Dental Scholars
- Biomedical Systems 2
  * Only for Pre-Dental Scholars
- Public Health
  * Can fulfill the Health and Society Cognate or elective, but not both
- Molecular Diagnostics
- Pathophysiology
- Kinesiology 1
  * Only for students in DPT
- Neuroanatomy
  * Only for students in PA

Biomedical Systems
  * Must be a Pre-Dental Scholar
Marquette Core Curriculum + Science Cognates + Major courses + Electives = **Minimum of 128 Credit Hours**

**General Electives:**
- Up to 24 Elective Credits in BISC Major for Clinical Tracking (Pre-Med/Pre-Dent/Pre-Health)...even more for general biomedical sciences major not tracking professional program requirements
- Many options: can try almost class or discipline or be more focused....

**Minors (18 – 24 credits):**
- Common Minors: Biology, Chemistry, Psychology, Business, Foreign Languages, Communication Studies, Human Resources, Spanish for the Health Professions...
- **Go to Undergraduate Bulletin and visit departments for specific minor requirements**

**Study Abroad:**
Office of International Education (OIE)
- [http://www.marquette.edu/abroad/index.shtml](http://www.marquette.edu/abroad/index.shtml)
  * Attend an information session and/or the Study Abroad Fair
- Inform your advisor of your interest 1st semester freshmen year; they will work with you to structure an appropriate course outline
  * Enroll in Electives and Humanities while abroad
  * 2nd semester sophomore year typically best time
  * Avoid summer after junior year if applying to professional school

**Typical Clinical Program Prerequisites (18-19 elective credits used for pre-reqs)**

**PRE-MEDICINE:**
- 2 sem. Biology with Lab
- 1 sem. Biochemistry
- 2 sem. Chemistry with Lab
- 2 sem. Organic Chemistry with Lab (4cr)
- 2 sem. Physics with Lab (8cr)
- 1 sem. Calculus (for the Health Professions) (3-4cr)
- 1 sem. Psychology
- 1 sem. Sociology for Pre-Meds (3cr)

✓ Start looking at programs and their requirements. Then discuss plan with advisor. *Be prepared for your future!*

**Admission and Readmission to the University:**
[http://bulletin.marquette.edu/undergrad/admissionprocedures/](http://bulletin.marquette.edu/undergrad/admissionprocedures/)
- AP credit
  - Consider Sciences and Long Term Goals/Professional School Requirements
    - **EX-CHEM 1001** – No for Pre-Med, Yes for Pre-PT
    - English, History, Humanities, Calculus – Yes
    - AP credits – not automatically transferred...contact AP College Board with questions
- CLEP
- International Baccalaureate (IB)
- Remember that credits transfer, not grades – no effect on GPA
- Pre-professional – check with your advisor before accepting AP or IB credits
- Transferology ([www.transferology.com/school/Marquette](http://www.transferology.com/school/Marquette)) – great starting point! Not official

**Student Resources:**

- **Advisors** ([http://www.marquette.edu/chs/bisc/undergraduate_advisers.shtml](http://www.marquette.edu/chs/bisc/undergraduate_advisers.shtml))
  - *In August*: an official academic advisor will be assigned to you on Checkmarq
  - *Before August*: Please contact autumn.swanson@mu.edu or diane.novotny@mu.edu

- **Career Services Center** (1st Floor Holthusen)
  - Resume building, Networking, jobs, Graduate/Professional School Application

- **Tutoring Center & Student Educational Services** (Coughlin Hall, 145)
  - Note taking, small group tutoring, study skills...FREE!

- **Ott Writing Center** (2nd Floor Raynor Library)

- **Disability Services** (5th Floor, 707 Building)

- **Counseling Center** (2nd Floor Holthusen)
  - Career Counseling, Crisis Intervention, etc.

- **Marquette Central Pre-Professional Advisor**—Laurie Goll (laurie.goll@mu.edu), Center for Pre-Health Advising,
  - [http://www.marquette.edu/pre-health-advising/index.php](http://www.marquette.edu/pre-health-advising/index.php)

- **Biomedical Sciences Webpage**: [http://www.marquette.edu/biomedical-sciences/undergraduate-curriculum.shtml](http://www.marquette.edu/biomedical-sciences/undergraduate-curriculum.shtml)

**Extra Opportunities:**

**Research**
- During regular academic terms
  - Volunteer
  - Independent Study (credit)
  - Undergraduate Lab Tech (Paid)
- Summer Research Program (SRP)
  - Applications due in February
  - Paired with a Mentor

**Student Employment**
- TA’s, Tutors, other campus jobs....

**Volunteering**
- Service-fest, Job Shadowing, Service Learning, Hospital/Clinical positions...

**Student Groups**
- BMSA (Biomedical Sciences Association)
- AED (Alpha Epsilon Delta – Honors Society)
- Pre-Dental Student Organization at Marquette
- AMSA (American Medical Student Association)
- Global Medical Brigades
- Many, many others.....(O-Fest)

**Disciplinary Honors in Biomedical Sciences**
- A competitive program in the Junior and Senior year of the BISC major for students who go above and beyond within the classroom.
- Small cohort of students complete a portfolio with an emphasis on research or community engagement within the biomedical sciences.
- Applications will be due during the spring semester of the sophomore year in order to be eligible.
  - [http://www.marquette.edu/biomedical-sciences/disciplinary-honors-program.php](http://www.marquette.edu/biomedical-sciences/disciplinary-honors-program.php)
For sequencing purposes, all students should register for the following classes:
CHEM 1001
BIOL 1001
BISC 1001

<table>
<thead>
<tr>
<th>Freshman Year - Fall</th>
<th>Freshman Year - Spring</th>
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<tbody>
<tr>
<td>CHEM 1001 General Chemistry 1</td>
<td>CHEM 1002 General Chemistry 2</td>
</tr>
<tr>
<td>BIOL 1001 General Biology 1</td>
<td>BIOL 1002 General Biology 2</td>
</tr>
<tr>
<td>Elective</td>
<td>PSYC 1001* or elective</td>
</tr>
<tr>
<td>THEO 1001 or PHIL 1001 (MCC)</td>
<td>PHIL 1001 or THEO 1001 (MCC)</td>
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<tr>
<td>ENGL 1001 or ESSV1 (MCC)</td>
<td>ESSV1 or ENGL 1001 (MCC)</td>
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<td>BISC 1001 Contemporary Issues in BISC</td>
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<thead>
<tr>
<th>Sophomore Year - Fall</th>
<th>Sophomore Year - Spring</th>
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<tbody>
<tr>
<td>BISC 2135 Clinical Human Anatomy</td>
<td>CHEM 2112* Organic Chemistry 2 or elective</td>
</tr>
<tr>
<td>CHEM 2111* Org. Chem. 1 (or BISC 2050 and elective)</td>
<td>Biochemistry BISC 2070 or 3213* (4 cr.)</td>
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<tr>
<td>BIOL 2001* (or other Lab cognate)</td>
<td>Statistics Cognate</td>
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<td>MATH 1410 or Elective</td>
<td>Elective</td>
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<tr>
<td>CORE 1929 Methods of Inquiry (MCC)</td>
<td>DSCV (MCC)¹,² SSC, HUM, NSM or ELE</td>
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<thead>
<tr>
<th>Junior Year - Fall</th>
<th>Junior Year - Spring</th>
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<tbody>
<tr>
<td>PHYS 1001* or Elective</td>
<td>PHYS 1002* or Elective</td>
</tr>
<tr>
<td>BISC 4145 Human Physiology</td>
<td>BISC Diseases &amp; Pathology Content Area</td>
</tr>
<tr>
<td>BISC Anatomy &amp; Systems Content Area+</td>
<td>BISC Cell &amp; Molecular Content Area</td>
</tr>
<tr>
<td>BISC Health and Society</td>
<td>DSCV (MCC)¹,² SSC, HUM, NSM or ELE</td>
</tr>
<tr>
<td>DSCV (MCC)¹,² SSC, HUM, NSM or ELE</td>
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<thead>
<tr>
<th>Senior Year - Fall</th>
<th>Senior Year - Spring</th>
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</thead>
<tbody>
<tr>
<td>BISC Cell &amp; Molecular Content Area</td>
<td>BISC Diseases &amp; Pathology Content Area</td>
</tr>
<tr>
<td>BISC Elective</td>
<td>BISC Elective (2 cr. if complete BISC 3213)</td>
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<tr>
<td>Medical Ethics</td>
<td>CORE 4929 Culminating Course (MCC)</td>
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<td>Electives</td>
<td>Elective</td>
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<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
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<td>128</td>
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