Applied Molecular Biology and Biotechnology (AMBB) Major
Curriculum for 2021-2022 Academic Year
122 Credits & ≥2.0 Cumulative GPA Required for Graduation

**University Requirements:**
- ENGL110 Seminar in Composition*
- First Year Seminar (FYS) 0-4 cr (UNIV101)
- ____ Discovery Learning Experience (DLE) 3 cr (satisfied by MMSC444)
- ____ Multicultural Requirement 3 cr ________ (may simultaneously satisfy breadth)
- ____ University Breadth Requirements* (these must be from **four different areas of study**/course rubrics)
  - ____ Creative Arts & Humanities* 3 cr (satisfied by ≥ C- in HLTH241)
  - ____ History & Cultural Change* 3 cr ________
  - ____ Social & Behavioral Sciences* 3 cr ________
  - ____ Math, Natural Science & Technology* 3 cr (satisfied by ≥ C- in BISC207 or 208 or CHEM103 or 104)
- ____ Capstone Experience (satisfied by MMSC444)

**MAJOR REQUIREMENTS (minimum grade C- for all required major courses):**
- ____ Mathematics (one of the following; MATH114, 115, 117, 221 or 241; MATH115 required for PHYS201)

**Physical and Biological Foundational Sciences (24 credits):**
- ____ BISC207 Introductory Biology I: 4
- ____ BISC208 Introductory Biology II: 4
- ____ CHEM103/107 or 103 Gen Chem Lecture/Lab I: 4
- ____ CHEM104/108 or 104 Gen Chem Lecture/Lab II: 4
- ____ CHEM321/325 Org Chem I Lecture/Lab: 3/1 OR CHEM213/215 Elem Org Chem Lecture/Lab: 3/1
- ____ CHEM322/326 Org Chem II Lecture/Lab: 3/1 OR CHEM214/216 Elem Biochem Lecture: 3/1

**Science Sequence (8 credits). Complete one of the following sequences:**

**Option I:**
- ____ KAAP309 Human Anatomy & Physiology I: 4 AND KAAP310 Human Anatomy & Physiology II: 4

**Option 2:**
- ____ PHYS201/221L Introductory Physics I: 4 AND PHYS202/222L Introductory Physics II: 4

**Core * (63 credits; minimum grade of C- required in all courses):**
- ____ ANFS449 Food Biotechnology: 4
- ____ HLTH241 Ethical Aspects of Healthcare: 3
- ____ MMSC100 Intro to Medical Laboratory Science: 1
- ____ MMSC200 The Language of Medicine 3
- ____ MMSC301 Introduction to Biotechnology: 2
- ____ MMSC360 Clinical Immunology & Medical Virology: 3
- ____ MMSC375 Stats & Rsrch for Med Lab Scientists: 2
- ____ MMSC408 Molecular Preparatory Techniques: 2
- ____ MMSC425 Basic Molecular Techniques: 4
- ____ MMSC426 Protein Purification and Characterization: 3
- ____ MMSC427 Flow Cytometry: 2
- ____ MMSC435 Introduction to Genomics, Proteomics & Bioinformatics: 3
- ____ MMSC441 Biotechnology Practicum I: 3
- ____ MMSC442 Biotechnology Practicum II: 3
- ____ MMSC443 Biotechnology Practicum III: 3
- ____ MMSC444 Biotechnology Practicum IV: 3
- ____ MMSC450 Medical Biochemistry: 4
- ____ MMSC451 Cell and Tissue Culture Techniques: 4
- ____ MMSC461 Laboratory Practice & Leadership I: 1
- ____ MMSC471 Laboratory Practice & Leadership II: 1
- ____ MMSC490 Clinical and Molecular Cell Biology: 3
- ____ MMSC491 Human Molecular Genetics: 3
- ____ MMSC492 Application Molecular Diagnostics Techniques: 3
- ____ ≥ 122 credits/2.0 Cum GPA required for graduation

Student Name: ____________________________  Student Signature: ____________________________

MMSC Program Director: ____________________________  Date: ________________

√ - indicates that this requirement will be satisfied by a course within the required major/core courses

* ≥ C- required

**Students are initially admitted to the AMBB Interest major and apply for the AMBB-BS typically at the end of the sophomore year. Preferred Criteria for Admission to the AMBB-BS Major: ≥ 2.9 GPA in first four semesters strongly suggested (exceptions considered on a case by case basis); completion of 60 credits including BISC207, BISC208, CHEM103/133, CHEM104/134, CHEM213/215 or 321/325, CHEM214/216 or 322/326, MATH114 AND THE SEQUENCE OF KAAP309 & KAAP310 OR PHYS201 AND PHYS202. Submit request via Webforms in UDSIS.**

7.22.21
# Applied Molecular Biology and Biotechnology (AMBB) Major

## Curriculum for 2021-2022 Academic Year

122 Credits & ≥2.0 Cumulative GPA Required for Graduation

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**Suggested AMBB Academic Program Sequence**

Consult with your advisor for possible alternative sequencing and term availability of courses. MMSC course term availability listed below is proposed for the 2020-21 academic year but is subject to change. Refer to Course Descriptions at [https://udapps.nss.udel.edu/CourseDescription/](https://udapps.nss.udel.edu/CourseDescription/) for associated course Prerequisites and Corequisites.

### First Year

<table>
<thead>
<tr>
<th>FALL – 16 credits</th>
<th>SPRING – 14 credits</th>
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</thead>
<tbody>
<tr>
<td>BISC207 Intro Biology I: 4</td>
<td>BISC208 Intro Biology II: 4</td>
</tr>
<tr>
<td>CHEM103/133 or 107 Gen Chemistry: 4</td>
<td>CHEM104/134 or 108 Gen Chemistry: 4</td>
</tr>
<tr>
<td>Mathematics: 3</td>
<td>ENGL110 Seminar in Composition: 3</td>
</tr>
<tr>
<td>MMSC100 Intro to Med Lab Science: 1</td>
<td>MMSC200 The Language of Medicine: 3</td>
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<tr>
<td>Elective: 3</td>
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### Second Year

<table>
<thead>
<tr>
<th>FALL – 16 credits</th>
<th>SPRING – 16 credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM321/325 Org Chem I Lecture/Lab: 3/1 OR CHEM213/215 Elem Org Chem Lecture/Lab: 3/1</td>
<td>CHEM322/326 Org Chem II Lecture/Lab: 3/1 OR CHEM214/216 Elem Biochem Lecture/Lab: 3/1</td>
</tr>
<tr>
<td>MMSC301 Introduction to Biotechnology: 2 (fall only) PHYS201/221L Introductory Physics I: 4 OR KAAP309 Human Anatomy &amp; Physiology I: 4</td>
<td>PHYS202/222L Introductory Physics II: 4 OR KAAP310 Human Anatomy &amp; Physiology II: 4</td>
</tr>
<tr>
<td>Breadth Requirement (e.g. HCC): 3</td>
<td>Multicultural: 3</td>
</tr>
<tr>
<td>Elective: 3</td>
<td>Breadth Requirement (e.g. SBS): 3</td>
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<tr>
<td></td>
<td>Elective: 2</td>
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</table>

### Third Year

<table>
<thead>
<tr>
<th>FALL – 15 credits; MMSC courses below Fall only</th>
<th>SPRING – 17 credits; MMSC courses below Spring only</th>
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<tbody>
<tr>
<td>MMSC360 Clin Immunology &amp; Medical Virology: 3</td>
<td>MMSC426 Protein Purification &amp; Characterization: 3</td>
</tr>
<tr>
<td>MMSC408 Molecular Preparatory Techniques: 2</td>
<td>MMSC450 Medical Biochemistry: 4</td>
</tr>
<tr>
<td>MMSC425 Basic Molecular Techniques: 4</td>
<td>MMSC451 Cell and Tissue Culture Techniques: 4</td>
</tr>
<tr>
<td>MMSC490 Clinical and Molecular Cell Biology: 3</td>
<td>MMSC491 Human Molecular Genetics: 3</td>
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<tr>
<td>Elective: 3</td>
<td>MMSC492 Application of Molecular Diagnostics Techniques: 3</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>FALL – 12 credits; MMSC courses below Fall only</th>
<th>SPRING – 16 credits; MMSC courses below Spring only</th>
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</thead>
<tbody>
<tr>
<td>MMSC375 Stats and Research for Med Lab Science: 2</td>
<td>ANFS449 Food Biotechnology: 4</td>
</tr>
<tr>
<td>MMSC435 Practical Genomics, Proteomics and Bioinformatics: 3</td>
<td>HLTH241 Ethical Aspects of Healthcare: 3</td>
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<td>MMSC441 Biotechnology Practicum I: 3</td>
<td>MMSC427 Flow Cytometry: 2</td>
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<tr>
<td>MMSC442 Biotechnology Practicum II: 3</td>
<td>MMSC443 Biotechnology Practicum III: 3</td>
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<tr>
<td>MMSC461 Laboratory Practice &amp; Leadership I: 1</td>
<td>MMSC444 Biotechnology Practicum IV: 3</td>
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<td>MMSC471 Laboratory Practice &amp; Leadership II: 1</td>
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Total of 122 credits

Students are strongly advised to refer to their Degree Audit regularly (accessed via UDSIS) to confirm progressive completion of graduation requirements as designated in the UD online Undergraduate Catalog. Applied Molecular Biology & Biotechnology 21-22 program requirements can be found at [https://catalog.udel.edu/preview_program.php?catoid=47&amp;poid=34903&amp:returnto=8860](https://catalog.udel.edu/preview_program.php?catoid=47&poid=34903&amp:returnto=8860)

Please be sure to select the correct academic year for your program requirements.

7.22.21