Human Biology – Bachelor of Science

Administered by the College of Natural Science Dean’s Office

### University Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Cr.</th>
<th>Course</th>
<th>Cr.</th>
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</thead>
<tbody>
<tr>
<td>WRA 101</td>
<td>4</td>
<td>ISS 200 level</td>
<td>4</td>
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<tr>
<td>IAH 201-210</td>
<td>4</td>
<td>ISS 300 level</td>
<td>4</td>
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<tr>
<td>IAH 211 or higher</td>
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### Introductory Science and Math Requirements

#### Mathematics

One course from each group (1 and 2):

1. MTH 124 Survey of Calculus I  
   MTH 132 Calculus I  
   MTH 152H Honors Calculus I  
2. STT 231 Statistics for Scientists  
   STT 201 Statistical Methods  
   STT 421 Statistics I  
   MTH 126 Survey of Calculus II  
   MTH 133 Calculus II  
   MTH 153H Honors Calculus II

#### Chemistry

All courses from one of the following groups:

1. CEM 141 General Chemistry  
   CEM 142 General & Inorganic Chemistry  
   CEM 161 Chemistry Lab I  
   CEM 162 Chemistry Lab II  
2. CEM 151 Principles of Chemistry I  
   CEM 152 Principles of Chemistry II  
   CEM 161 Chemistry Lab I  
   CEM 162 Chemistry Lab II  
3. CEM 181H Honors Chemistry I  
   CEM 182H Honors Chemistry II  
   CEM 185H Honors Chemistry Lab I

#### Biology

All courses from one of the following groups:

1. BS 161 Cell and Molecular Biology  
   BS 162 Organismal and Population Biology  
   BS 171 Cell and Molecular Biology Lab  
2. BS 181H Honors Cell and Molecular Biology  
   BS 182H Honors Organismal and Population  
   BS 191H Honors Cell and Molecular Biology Lab  
   BS 192H Honors Organismal and Population Lab

#### Introductory Science and Math Requirements

#### Organic Chemistry

All of the following:

1. CEM 251 Organic Chemistry I  
2. CEM 252 Organic Chemistry II  
3. CEM 255 Organic Chemistry Lab

#### Biochemistry

BMB 401 Comprehensive Biochemistry  

#### Genetics

IBIO 341 Fundamental Genetics  

#### Anatomy

One of the following courses:

1. ANTR 350 Human Gross Anatomy  
2. IBIO 320 Developmental Biology  
3. IBIO 328 Comparative Anatomy (W)

#### Advanced Cell Biology/Immunology

One of the following courses:

1. HBIO 410 Cellular Basis of Disease**  
2. BLD 434 Clinical Immunology*  
3. MMG 409 Eukaryotic Cell Biology **  
4. MMG 413 Virology (discontinued SS23)  
5. MMG 451 Immunology*  
6. IBIO 425 Cells and Development (W)

If more than one Advanced Cell Biology Option is taken, the second course can be applied as a selective.

*Do not take both BLD 434 and MMG 451. These are considered equivalent courses.

**Do not take both HBIO 410 and MMG 409. These are considered equivalent courses.
# Selectives

**Twelve credits from the following selective courses:**  
*(DOES NOT INCLUDE COURSES USED TO FULFILL ANOTHER AREA OF THE MAJOR REQUIREMENTS)*

## Anthropology
- ANP 204 Introduction to Medical Anthropology**  
- ANP 206 Introduction to Physical Anthropology**  
- ANP 270 Women and Health: Anthropological and International Perspectives**  
- ANP 370 Culture, Health, and Illness  
- ANP 425 Issues in Medical Anthropology  
- ANP 441 Osteology and Forensic Anthropology  
- ANP 443 Human Adaptability

## Anatomy
- ANTR 355 Human Gross Anatomy Laboratory

## Biomedical and Laboratory Diagnostics
- BLD 204 Mechanisms of Disease (Must be taken before senior status, 88+ credits)  
- BLD 213L Clinical Laboratory Methods  
- BLD 324 Fundamentals of Hematology, Hemostasis, and Urinalysis  
- BLD 430 Molecular Diagnostics  
- BLD 439 Histocompatibility and Immunogenetics  
- BLD 446 Immunobiology of Neoplasia  
- BLD 447 Immunomodulation and Immunotherapy

## Epidemiology
- EPI 390 Disease in Society: Introduction to Epidemiology & Public Health**

## Human Biology
- HBIO 295 Human Biology and Society

## Human Nutrition
- HNF 310 Nutrition in Medicine for Pre-Health Professionals

## Integrative Biology
- IBIO 408 Histology  
- IBIO 445 Evolution (W)  
- IBIO 450 Cancer Biology (W)

## Microbiology
- MMG 301 Introductory Microbiology  
- MMG 302 Introductory Lab for General and Allied Health Microbiology  
- MMG 365 Medical Microbiology  
- MMG 365L Medical Microbiology Laboratory  
- MMG 404 Human genetics  
- MMG 431 Microbial Genetics  
- MMG 461 Molecular Pathogenesis  
- MMG 465 Advanced Medical Microbiology  
- MMG 465L Advanced Medical Microbiology Laboratory

## Neurobiology
- NEU 300 Neurobiology  
- NEU 310 Psychology and Biology of Human Sexuality

## Pharmacology
- PHM 321 Common Drugs  
- PHM 350 Introductory Human Pharmacology  
- PHM 351 Fundamentals of Drug Safety  
- PHM 422 Fundamentals of Neuropharmacology  
- PHM 430 Human Pharmacology  
- PHM 431 Pharmacology of Drug Addiction**  
- PHM 440 Principles of Drug Action  
- PHM 450 Introduction to Chemical Toxicology  
- PHM 461 Tropical Medicine Pharmacology

## Physiology
- PSL 311L Physiology Laboratory for Pre-Health Professionals
<table>
<thead>
<tr>
<th>Psychology</th>
<th>3</th>
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<tbody>
<tr>
<td>PSY 320 Health Psychology</td>
<td>3</td>
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<tr>
<td>PSY 333 Neurobiology of Food Intake</td>
<td>3</td>
</tr>
<tr>
<td>Public Health</td>
<td>3</td>
</tr>
<tr>
<td>PH 101 Introduction to Public Health**</td>
<td>3</td>
</tr>
<tr>
<td>OST 402 Introduction to Global Health**</td>
<td>3</td>
</tr>
<tr>
<td><strong>No prerequisites</strong></td>
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With the approval of the director of the human biology major, a maximum of 3 credits in research (HBIO 498), internship (HBIO 497) or independent study (HBIO 496) courses may be used to satisfy this requirement.

**Additional Graduation Requirements:**
- **300-400 Level Courses**: 30 credits
- **Students must have a least a 2.0 cumulative GPA and at least a 2.0 cumulative Major GPA**

*Please monitor your Degree Progress on [https://student.msu.edu/](https://student.msu.edu/)*
College of Natural Science  
Human Biology Course Timeline

The following is a list of courses required for the Human Biology major. This is only a sample guide.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
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<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>CEM 141/161</td>
<td>CEM 142/162</td>
<td>CEM 251</td>
<td>CEM 252/255</td>
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<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
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<td><strong>Spring</strong></td>
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<tr>
<td>MATH</td>
<td>MATH</td>
<td>BS 161/171</td>
<td>BS 162/172</td>
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<tr>
<td>Elective</td>
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<td>Elective (Or MTH)</td>
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***Many courses are offered in the summer. Consult with your advisor to determine if summer courses would be a good option for you.***