

# BIOMEDICAL SCIENCES, MS

## Requirements for Students Matriculating in or before Academic Year

2022-2023. Learn more about Graduate College Academic Regulation 7.0 (<http://catalog.okstate.edu/graduate-college/#70>).

## Thesis Option

Total Hours: 30

| Code                                | Title  | Hours     |
|-------------------------------------|--|-----------|
| <b>Required Courses</b>             |  |           |
| BIOM 5000                           | Research & Thesis  | 6         |
| BIOM 5003                           | Statistics for Medical Residents                                       | 3         |
| BIOM 6662                           | Research Ethics and Survival Skills for the Biomedical Sciences        | 2         |
| BIOM 6922                           | Scientific Communication in Biomedical Sciences                        | 2         |
| <b>Hours Subtotal</b>               |  | <b>13</b> |
| <b>Optional Electives</b>           |  |           |
| Select 17 hours from the following: |  | 17        |
| BIOM 5010                           | Special Topics in Biomedical Sciences                                  |           |
| BIOM 5020                           | Biomedical Sciences Seminar  |           |
| BIOM 5116                           | Clinical Anatomy   |           |
| BIOM 5122                           | Introduction and Survey of Human Structure                             |           |
| BIOM 5133                           | Neuroanatomy   |           |
| BIOM 5144                           | Histology and Development  |           |
| BIOM 5215                           | Medical Biochemistry   |           |
| BIOM 5316                           | Medical Microbiology and Immunology                                    |           |
| BIOM 5616                           | Graduate Biomedical Physiology   |           |
| BIOM 5621                           | Introduction to Translational Research                                 |           |
| BIOM 5631                           | Disease Research in Medicine   |           |
| BIOM 5641                           | Cornerstones of Vertebrate Paleontology                                |           |
| BIOM 5653                           | Evolutionary Physiology  |           |
| BIOM 5663                           | Graduate Pharmacology  |           |
| BIOM 5672                           | Scientific Outreach Training for Graduate Students                     |           |
| BIOM 5683                           | Chronic Inflammation and Cancer Development                            |           |
| BIOM 5693                           | Principle Concepts of Cellular and Molecular Immunology                |           |
| BIOM 5703                           | Applied Multivariate and Evolutionary Analysis of Paleontological Data |           |
| BIOM 5983                           | Principles of Neuroscience   |           |
| BIOM 5993                           | Principles of Neuroanatomy   |           |
| BIOM 6175                           | Molcular And Cellular Biology  |           |
| BIOM 6183                           | Cellular and Molecular Biology of Pain                                 |           |
| BIOM 6193                           | Paleommalogy   |           |
| BIOM 6214                           | Advanced Topics in Medical Biochemistry                                |           |
| BIOM 6233                           | Enzyme Analysis  |           |
| BIOM 6243                           | Human Nutrition  |           |
| BIOM 6263                           | Techniques in Molecular Biology  |           |
| BIOM 6333                           | Immunology   |           |
| BIOM 6343                           | Microbial Physiology   |           |

|           |   |
|-----------|---|
| BIOM 6353 | Molecular Virology  |
| BIOM 6363 | Immunobiology of Infectious Disease   |
| BIOM 6413 | Graduate General Pathology and Laboratory Medicine                                |
| BIOM 6523 | Cardiovascular Physiology and Pharmacology  |
| BIOM 6543 | Environmental Toxins in the Brain   |
| BIOM 6583 | Neuroinflammation   |
| BIOM 6613 | Environmental Physiology  |
| BIOM 6643 | Neurophysiology   |
| BIOM 6653 | Graduate Seminar In Signal Transduction   |
| BIOM 6663 | Neuroethology   |
| BIOM 6673 | Genomics  |
| BIOM 6705 | Advanced Gross Anatomy  |
| BIOM 6723 | Field Techniques in Vertebrate Paleontology                                       |
| BIOM 6733 | Human Microbiome in Health and Disease  |
| BIOM 6743 | Foundations in Medical Genetics, Molecular Biology and Development                |
| BIOM 6752 | Foundations in Medical Cell and Tissue Biology                                    |
| BIOM 6762 | Foundations in Medical Biochemistry   |
| BIOM 6771 | Foundations in Medical Pharmacology   |
| BIOM 6781 | Foundations in Medical Immunology   |
| BIOM 6793 | Foundations in Medical Microbiology   |
| BIOM 6800 | Critical Readings in Biomedical Sciences  |
| BIOM 6810 | Structure and Function of the Human Cardiovascular System                         |
| BIOM 6820 | Structure and Function of the Human Gastrointestinal/Hepatic System               |
| BIOM 6830 | Biomedical Perspectives on Human Hematology                                       |
| BIOM 6840 | Structure and Function of the Human Musculoskeletal System                        |
| BIOM 6843 | Vertebrate Osteology  |
| BIOM 6850 | Structure and Function of the Human Renal System                                  |
| BIOM 6860 | Structure and Function of the Human Reproductive Systems and Reproductive Biology |
| BIOM 6870 | Structure and Function of the Human Respiratory System                            |
| BIOM 6880 | Biomedical Perspectives on Psychiatry   |
| BIOM 6900 | Structure and Function of the Human Endocrine System                              |
| BIOM 6910 | Structure and Function of the Human Nervous System                                |
| BIOM 6933 | Cornerstones of Graduate Biomedical Sciences                                      |
| BIOM 6943 | Advanced Vertebrate Paleontology  |
| BIOM 6952 | Paleohistology Techniques   |
| BIOM 6962 | Evolutionary Biomechanics   |
| BIOM 6972 | Role of Nicotinic Acetylcholine Receptors in Neuropsychiatric Disorders           |

|                       |           |
|-----------------------|-----------|
| <b>Hours Subtotal</b> | <b>17</b> |
| <b>Total Hours</b>    | <b>30</b> |

## Non-Thesis Option

**Total Hours:** 32

| <b>Code</b>                         | <b>Title</b>   | <b>Hours</b> |
|-------------------------------------|--|--------------|
| <b>Required Courses</b>             |  |              |
| BIOM 5000                           | Research & Thesis  | 2            |
| BIOM 5003                           | Statistics for Medical Residents                                       | 3            |
| BIOM 6662                           | Research Ethics and Survival Skills for the Biomedical Sciences        | 2            |
| BIOM 6922                           | Scientific Communication in Biomedical Sciences                        | 2            |
| <b>Hours Subtotal</b>               |  | <b>9</b>     |
| <b>Optional Electives</b>           |  |              |
| Select 23 hours from the following: |  | 23           |
| BIOM 5010                           | Special Topics in Biomedical Sciences                                  |              |
| BIOM 5020                           | Biomedical Sciences Seminar  |              |
| BIOM 5116                           | Clinical Anatomy   |              |
| BIOM 5122                           | Introduction and Survey of Human Structure                             |              |
| BIOM 5133                           | Neuroanatomy   |              |
| BIOM 5144                           | Histology and Development  |              |
| BIOM 5215                           | Medical Biochemistry   |              |
| BIOM 5316                           | Medical Microbiology and Immunology                                    |              |
| BIOM 5616                           | Graduate Biomedical Physiology   |              |
| BIOM 5621                           | Introduction to Translational Research                                 |              |
| BIOM 5631                           | Disease Research in Medicine   |              |
| BIOM 5641                           | Cornerstones of Vertebrate Paleontology                                |              |
| BIOM 5653                           | Evolutionary Physiology  |              |
| BIOM 5663                           | Graduate Pharmacology  |              |
| BIOM 5672                           | Scientific Outreach Training for Graduate Students                     |              |
| BIOM 5683                           | Chronic Inflammation and Cancer Development                            |              |
| BIOM 5693                           | Principle Concepts of Cellular and Molecular Immunology                |              |
| BIOM 5703                           | Applied Multivariate and Evolutionary Analysis of Paleontological Data |              |
| BIOM 5983                           | Principles of Neuroscience   |              |
| BIOM 5993                           | Principles of Neuroanatomy   |              |
| BIOM 6175                           | Molecular And Cellular Biology   |              |
| BIOM 6183                           | Cellular and Molecular Biology of Pain                                 |              |
| BIOM 6193                           | Paleommalogy   |              |
| BIOM 6214                           | Advanced Topics in Medical Biochemistry                                |              |
| BIOM 6233                           | Enzyme Analysis  |              |
| BIOM 6243                           | Human Nutrition  |              |
| BIOM 6263                           | Techniques in Molecular Biology  |              |
| BIOM 6333                           | Immunology   |              |
| BIOM 6343                           | Microbial Physiology   |              |
| BIOM 6353                           | Molecular Virology   |              |
| BIOM 6363                           | Immunobiology of Infectious Disease                                    |              |

|                       |   |           |
|-----------------------|---|-----------|
| BIOM 6413             | Graduate General Pathology and Laboratory Medicine                                |           |
| BIOM 6523             | Cardiovascular Physiology and Pharmacology  |           |
| BIOM 6543             | Environmental Toxins in the Brain   |           |
| BIOM 6583             | Neuroinflammation   |           |
| BIOM 6613             | Environmental Physiology  |           |
| BIOM 6643             | Neurophysiology   |           |
| BIOM 6653             | Graduate Seminar In Signal Transduction   |           |
| BIOM 6663             | Neuroethology   |           |
| BIOM 6673             | Genomics  |           |
| BIOM 6705             | Advanced Gross Anatomy  |           |
| BIOM 6723             | Field Techniques in Vertebrate Paleontology                                       |           |
| BIOM 6733             | Human Microbiome in Health and Disease  |           |
| BIOM 6743             | Foundations in Medical Genetics, Molecular Biology and Development                |           |
| BIOM 6752             | Foundations in Medical Cell and Tissue Biology                                    |           |
| BIOM 6762             | Foundations in Medical Biochemistry   |           |
| BIOM 6771             | Foundations in Medical Pharmacology   |           |
| BIOM 6781             | Foundations in Medical Immunology   |           |
| BIOM 6793             | Foundations in Medical Microbiology   |           |
| BIOM 6800             | Critical Readings in Biomedical Sciences  |           |
| BIOM 6810             | Structure and Function of the Human Cardiovascular System                         |           |
| BIOM 6820             | Structure and Function of the Human Gastrointestinal/Hepatic System               |           |
| BIOM 6830             | Biomedical Perspectives on Human Hematology                                       |           |
| BIOM 6840             | Structure and Function of the Human Musculoskeletal System                        |           |
| BIOM 6843             | Vertebrate Osteology  |           |
| BIOM 6850             | Structure and Function of the Human Renal System                                  |           |
| BIOM 6860             | Structure and Function of the Human Reproductive Systems and Reproductive Biology |           |
| BIOM 6870             | Structure and Function of the Human Respiratory System                            |           |
| BIOM 6880             | Biomedical Perspectives on Psychiatry   |           |
| BIOM 6900             | Structure and Function of the Human Endocrine System                              |           |
| BIOM 6910             | Structure and Function of the Human Nervous System                                |           |
| BIOM 6933             | Cornerstones of Graduate Biomedical Sciences                                      |           |
| BIOM 6943             | Advanced Vertebrate Paleontology  |           |
| BIOM 6952             | Paleohistology Techniques   |           |
| BIOM 6962             | Evolutionary Biomechanics   |           |
| BIOM 6972             | Role of Nicotinic Acetylcholine Receptors in Neuropsychiatric Disorders           |           |
| <b>Hours Subtotal</b> |   | <b>23</b> |
| <b>Total Hours</b>    |   | <b>32</b> |

## Graduate College Master's Program Requirements

Learn more about Graduate College 2022-2023 Master's Degree Program Requirements (<http://catalog.okstate.edu/graduate-college/>). Check the General Graduate College academic regulations for minimal GPA, language proficiency and other general requirements.