Molecular Biology, Genetics and Cancer (MBGC) Curriculum

<table>
<tr><th colspan="4">Year 1</th></tr>
<tr><td>Sep/Oct</td><td>Block 1</td><td>IBMS (2.5) GSND5200Q
Critical Readings of the Literature
BIOC 5290Q (1.5)</td><td rowspan="6">1st Rotation Oct/Nov/Dec (2) MBGC593A

2nd Rotation Jan/Feb/Mar (2) MBGC593B

3rd Rotation Mar/Apr/May (2) MBGC593C

MBGC5910Q (Seminar course) through the year (0.5+0.5)</td></tr>
<tr><td>Nov/Dec</td><td>Block 2</td><td>IBMS (2.5) GSND5200Q
Critical Readings of the Literature
BIOC 5290Q (1.5)
Elective</td></tr>
<tr><td>Jan/Feb</td><td>Block 3</td><td>Required course (2)
Elective or required course</td></tr>
<tr><td>Mar/Apr</td><td>Block 4</td><td>Required course (2)
Elective or required course</td></tr>
<tr><td>May/Jun</td><td>Block 5</td><td>Ethics GSND 5001Q (1)
Elective or required course</td></tr>
<tr><td>Jul/Aug</td><td>Block 6</td><td colspan="2">Initiate Research with Mentor (2)</td></tr>
<tr><th colspan="4">Year 2</th></tr>
<tr><td>Sep/Oct</td><td>Block 7</td><td colspan="2">Research (2)
Professional Skills—Presentations GSND 05960 (1)
Elective or required course (2)</td></tr>
<tr><td>Nov/Dec</td><td>Block 8</td><td colspan="2">Experimental Design and Statistics GSND 5135Q (2)
Research (2)
Elective or Required Course (2)</td></tr>
<tr><td>Jan/Feb</td><td>Block 9</td><td colspan="2">Professional Skills—Grant Writing GSND 5006Q (2)
Research (2)</td></tr>
<tr><td>Mar/Apr</td><td>Block 10</td><td colspan="2">Candidacy Exam</td></tr>
<tr><td>May/Jun</td><td>Block 11</td><td colspan="2" rowspan="2">Thesis Research</td></tr>
<tr><td>July/Aug</td><td>Block 12</td></tr>
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Required Courses: Students should select 8 credits minimum from the following (can also be used ans electives)

- **Cellular Pathology PATH5100Q-Lambert (2 cr)**
- **Molecular Genetics of Model Organisms MBGC5055Q-Kaback (2 cr)**
- **Cancer Biology: Extrinsic Factors in Cancer Progression MBGC 5015Q-Whitehead (2 cr)**
- **Cancer Biology: Intrinsic Cell Signaling and Cancer Development MBGC 5020Q-Whitehead (2 cr)**
- **Introduction to Bioinformatics, Genomics and Proteomics MBGC 5002Q-Hassimi/Bellofatto (2 cr)**
- **Advances in Nucleic Acids: DNA MBGC 5071Q-Modak (2 cr)**
- **Advances in Nucleic Acids: RNA MBGC 5070Q-Modak (2 cr)**
- **Viruses, Cells and Disease BIOC5125Q-Mathews (2 cr)**

Electives:

- **Methods in Microscopic Imaging DENT 5220Q (2 cr)**
- **Human Genetics MICR 5045Q (2 cr)**
- **Pharmacological Principles (1-2 cr)**
- **Methods in Stem cells, transgenics, imaging techniques (2 cr)**
- **Introduction to Structural Biology DENT 5145Q (1 cr)**
- **General Pathology PATH 5010Q (2 cr)**
- **Neuroscience NEUR 5200Q (3 cr)**
- **21st Century Pathogens TIII 5620Q (2cr)**
- **Molecular and Cellular Immunology PATH 5210Q (3 cr)**
- **Foundations of Biochemistry and Molecular Biology BIOC5007Q (1 cr)**
- **Mol Phys Cell Communication CBNP 5036Q (4 cr)**
- **Regenerative Medicine CBNP 5037Q (2 cr)**
- **Molecular Mechanisms of Disease CBNP 5068Q (3 cr)**
- **Developmental Biology and Stem Cells CBMM 5020Q (2 cr)**
- **Microbes and Infectious Diseases MICR N5233 (3 cr)**
- **DNA Repair in Health and Disease PATH 5130Q (1 cr)**
- **Topics in Cancer Stem Cell Biology MSBS N512 (2 cr)**
- **Hematopoietic Stem Cell Biology MSBS N5134 (2 cr)**
- **Fundamentals of Human Physiology PHPY 5005Q (3 cr)**
- **Practical Approaches for Studying Protein Function CBMM 5002Q (2 cr)**
- **Molecular and Cellular Immunology PATH 5210Q (3 cr)**
- **PLUS all Molecular Sciences Required Courses can serve as electives for this or other tracks**

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Guided Curricula in:

- **Cancer Biology**
- **Gene Expression and Signalling**
- **Genomics and Bioinformatics**
- **Structural Biology**
- **Translational Research**

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All students are expected to observe and support high standards of honesty, integrity and professional conduct in all aspects of education and research. Professional behaviors include arriving on-time for class, respecting the opinions of classmates and professors, appropriately referencing work produced by another person, following through on commitments and using positive verbal and non-verbal communication. While it is occasionally appropriate to challenge a grade assignment, students are expected to conduct themselves in a reasonable manner and recognize that the professor has the authority to lower a grade as well as to raise a grade following further evaluation. Please refer to the GSBS student handbook on academic integrity.