LIFE SCIENCES

Program Notes
Subject Code for Anatomy: ANAT
Subject Code for Biochemistry: BCHM
Subject Code for Cancer Research: CANC
Subject Code for Cardiorespiratory Science: CRSS
Subject Code for Drug Discovery and Human Toxicology: DDHT
Subject Code for Life Sciences: LISC
Subject Code for Microbiology and Immunology: MICR
Subject Code for Neuroscience: NSCI
Subject Code for Pathology and Molecular Medicine: PATH
Subject Code for Pharmacology and Toxicology: PHAR
Subject Code for Physiology: PHGY
Subject Code for Public Health Sciences: EPID
Subject Code for Reproduction and Development: REPD
World Wide Web Address: www.healthsci.queensu.ca/liscbchm/life_sciences (https://www.healthsci.queensu.ca/liscbchm/life_sciences/)

Associate Dean, Life Sciences and Biochemistry: Louise Winn (louise.winn@queensu.ca)

Departmental Office: Botterell Hall, Room 815
Departmental Telephone: 613-533-6527
Undergraduate Office E-mail Address: lifesci@queensu.ca

Overview
The hallmark of the Life Sciences program is a unique blend of disciplines represented by basic and clinical biomedical science departments in the Faculty of Health Sciences. These departments include Biomedical and Molecular Sciences, Public Health Sciences, and Pathology and Molecular Medicine, in collaboration with the Cancer Research Institute, the Centre for Neuroscience Studies, the Cardiac, Circulation and Respiratory Group, and the Research Group in Reproduction and Development.

The subjects that fall under the umbrella of the Life Sciences program include traditional biomedical disciplines devoted to the anatomical, biochemical, epidemiological, immunological, microbiological, pathological, pharmacological, and physiological sciences. In addition, there are Sub-plans dedicated to contemporary trans-disciplinary themes in the cardiovascular and respiratory sciences, drug development and human toxicology, cancer biology and genetics, and neuroscience.

The Department of Biomedical and Molecular Sciences is responsible for Biochemistry Plans (General (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/biochemistry/biochemistry-major-science-bs-honours/), Specialization (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/biochemistry/biochemistry-specialization-science-bs-honours/)) and plays a primary role in the Life Sciences Plans (General (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-major-science-bs-honours/), Minor (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-minor-science-bs-honours/)). The Department is a unique amalgam of scientists and teachers who share a common goal: to ameliorate the consequences of disease and trauma by training the next generation of health care scientists and professionals. To meet this goal, the Department draws on the depth and breadth of the scientific expertise of its members. Contemporary courses are offered in the anatomical, biochemical, microbiological, immunological, pharmacological, and physiological sciences and in a wide range of cross-disciplinary studies (e.g. cardiovascular and respiratory sciences, drug development, cancer biology and genetics, and neuroscience). These courses are integral to the various Biochemistry and Life Sciences Plans.

Program Policies
Laboratory Safety
Departmental Safety Rules are strictly enforced. A standard white laboratory coat is required for all laboratory courses. Shoes must be closed at both heel and toe. Additional safety requirements will be described at the first laboratory in each laboratory-based course.

Access to Third and Fourth Year Courses
Students in the Life Sciences Specialization Plan (LISC-P-BSH) (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-major-science-bs-honours/) will be given priority enrolment to those courses that are required to meet third- and fourth-year core and option requirements. Students in both the Life Sciences Specialization (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-

Advice to Students

Students should seek academic counselling from staff in the Associate Dean's office:

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<tr>
<th>Course Prefix</th>
<th>Counsellor</th>
<th>Contact Information</th>
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</thead>
<tbody>
<tr>
<td>BCHM and LISC</td>
<td>Louise Winn</td>
<td><a href="mailto:lifesci@queensu.ca">lifesci@queensu.ca</a></td>
</tr>
<tr>
<td>BCHO and LISC</td>
<td>Katherine Rudder</td>
<td><a href="mailto:lifesci@queensu.ca">lifesci@queensu.ca</a></td>
</tr>
<tr>
<td>BCHM and LISC</td>
<td>Beatriz Sugarman</td>
<td><a href="mailto:biochem@queensu.ca">biochem@queensu.ca</a></td>
</tr>
</tbody>
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Students may also seek academic counselling from one of the counselors listed below:

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<thead>
<tr>
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<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT</td>
<td>Leslie MacKenzie</td>
<td><a href="mailto:mackenzl@queensu.ca">mackenzl@queensu.ca</a></td>
</tr>
<tr>
<td>BCHO</td>
<td>Robert L. Campbell</td>
<td><a href="mailto:robert.campbell@queensu.ca">robert.campbell@queensu.ca</a></td>
</tr>
<tr>
<td>CANC and PATH</td>
<td>Christopher Nicol</td>
<td><a href="mailto:nicolc@queensu.ca">nicolc@queensu.ca</a></td>
</tr>
<tr>
<td>CRSS and PHGY</td>
<td>Shetuan Zhang</td>
<td><a href="mailto:shetuan.zhang@queensu.ca">shetuan.zhang@queensu.ca</a></td>
</tr>
<tr>
<td>EPID</td>
<td>Ana Johnson</td>
<td><a href="mailto:ana.johnson@queensu.ca">ana.johnson@queensu.ca</a></td>
</tr>
<tr>
<td>DDHT and PHAR</td>
<td>Nikki A. Philbrook</td>
<td><a href="mailto:niki.philbrook@queensu.ca">niki.philbrook@queensu.ca</a></td>
</tr>
<tr>
<td>MICR</td>
<td>R. Keith Poole</td>
<td><a href="mailto:poolek@queensu.ca">poolek@queensu.ca</a></td>
</tr>
<tr>
<td>NSCI</td>
<td>Jason Gallivan</td>
<td><a href="mailto:gallivan@queensu.ca">gallivan@queensu.ca</a></td>
</tr>
</tbody>
</table>

• The Biomedical Discovery Sub-plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-specialization-science-bs-honours/#Biomedical-Discovery-SubPlan) is recommended to students who wish to gain advanced laboratory experience or experiential learning in Anatomy or Epidemiology/Public Health or Immunology or Microbiology or Pathology or Pharmacology or Physiology, or Reproduction and Development.

• The Biomedical Sciences Sub-plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-specialization-science-bs-honours/#Biomedical-Sciences-SubPlan) provides more flexibility in choice of options and electives than other sub-plans, and is recommended to students who wish to obtain a wide-ranging foundation in the life sciences with opportunities for advanced study in selected topics.

The remaining four sub-plans are devoted to contemporary trans-disciplinary streams and place a high premium on laboratory-based research and seminar-based learning.

• The Cancer Sub-plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-specialization-science-bs-honours/#Cancer-Research) is recommended to students who wish to proceed to graduate studies and research in Cancer Biology and Genetics. Students intending to take this sub-plan should consult the list of option courses required for completion of the program, and consider appropriate courses in Year 3.

• The Cardiorespiratory Sub-plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-specialization-science-bs-honours/#Cardiorespiratory-Science) is recommended to students who wish to proceed to graduate studies and research in the cardiovascular and respiratory sciences. Students intending to take this sub-plan should complete PHGY 355 Biomedical Respiratory Physiology/3.0 in Year 3.

• The Drug Discovery and Human Toxicology Sub-plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-specialization-science-bs-honours/#Drug-Discovery&Human-Toxicology) is recommended to students who are interested in enriched study in the fields of drug discovery and development as well as in mechanisms of drug and toxicant action. Students will gain advanced knowledge which will make them competitive for graduate studies and marketable in particular employment areas (e.g. government regulatory agencies and pharmaceutical companies).

• The Neuroscience Sub-plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-specialization-science-bs-honours/#Neuroscience) is recommended to students who wish to proceed to graduate studies and research in the neurosciences. Students intending to take this option should complete either NSCI 323 Cellular Neuroscience/3.0 or NSCI 324 Systems Neuroscience/3.0 in Year 3. It is strongly recommended that students in this sub-plan complete both courses.

Life Sciences Major Plan (https://queensu-ca-public.courseleaf.com/arts-science/schools-departments-programs/life-sciences/life-sciences-major-science-bs-honours/) is recommended to students who wish to pursue a wider range of study than is possible with the Life Sciences Specialization Plan. Access to specialized courses at the 400
level may be limited, with priority given to students in the Life Sciences Specialization Plan program.

**Preparation for a Teaching Career**
Students wishing to enter teaching as a career are advised to consult the Faculty of Education concerning the prerequisites for the B.Ed. program options.

**Note** Students enrolled in this program will be required to work with animals and tissues obtained from animals.