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3a.

DEPARTMENT OF BIOLOGY

Head: C. D. Nelson

Quinn

Program in Biological Science for Non-Biology Majors

Biol 101, 102, 201, 202, 203, and 204. Students cannot proceed to upper level courses without the required prerequisites in Chemistry and Mathematics.

Program in Biological Science for Majors

*See below
50-50*

A minimum of 50 semester hours in Biological Sciences, or related topics approved by the Department, is required, together with 15 semester hours of Chemistry, 9 semester hours of Mathematics and 6 semester hours of Physics.

Although there are many variations the following is a typical program:

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|--------------|----|---------------------------|--------------------------------|---------|
| Semester 1 - | 1. | Biol 101 - 4 | Introductory Biology | (1-1-4) |
| | 2. | Chem 101 - 3 | General Chemistry I | (3-1-0) |
| | 3. | Chem 106 - 2 | Chemistry Laboratory | (0-0-4) |
| | 4. | Math 111 - 3 | Fundamental Mathematics I | (3-1-0) |
| | 5. | Phys 101 - 3 | General Physics I | (3-1-0) |
| | | | or Arts elective | |
| | 6. | General Education 001 - 0 | | (2-0-0) |
| Semester 2 - | 1. | Biol 102 - 4 | Introductory Biology | (1-1-4) |
| | 2. | Chem 102 - 3 | General Chemistry II | (3-1-0) |
| | 3. | Chem 116 - 2 | Qualitative Analysis Lab. | (0-0-4) |
| | 4. | Math 112 - 3 | Fundamental Mathematics II | (3-1-0) |
| | 5. | Phys 102 - 3 | General Physics II | (3-1-0) |
| | | | or Arts elective | |
| | 6. | General Education 001 - 0 | | (2-0-0) |
| Semester 3 - | 1. | Two of Biol 201-3 | Cell Biology and Biochemistry | (3-1-0) |
| | | Biol 202-3 | Human Genetics | (3-1-0) |
| | | Biol 203-3 | Developmental Biology | (3-1-0) |
| | | Biol 204-3 | Introduction to Ecology | (3-1-0) |
| | 2. | Chem 251-3 | Organic Chemistry I | (3-1-0) |
| | 3. | Chem 256-2 | Organic Chemistry Laboratory I | (0-0-4) |
| | 4. | Math 101-3 | Introduction to Statistics | (2-0-2) |
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- Semester 4 -
1.) The other two of Biol 201-3, 202-3, 203-3, and 204-3.
 2. Elective; Chem 421-3 Biochemistry I recommended (3-1-0)
 3. Elective; Math 213-3 Calculus I recommended (3-1-0)
 4. Elective

The second 4 semesters must include 30 additional semester hours of Biological Science, Chemistry or topics approved by the Department of Biological Sciences.

- NOTES: -
1. The following courses may be counted towards fulfilling the credit requirements in Biological Science:
 - Chem 422-3 Biochemistry II (3-1-0)
 - Chem 426-2 Biochemistry Laboratory I (0-0-4)
 - Chem 427-2 Biochemistry Laboratory II (0-0-4)
 - Phys 221-3 Electricity and Magnetism I (3-1-0)
 2. If Phys 101-3 and Phys 102-3 are not taken in the first two semesters they must be taken in later semesters to fulfill the requirement for the major in Biological Sciences.

PROGRAM IN BIOLOGICAL SCIENCE FOR HONORS

The Honors Program is identical with the Major Program up to the end of the fourth semester. Entry into the fifth semester of the honors program requires departmental approval. The second 4 semesters must include 42 additional semester hours of Biological Science, Chemistry, Physics, Mathematics, Anthropology or Geography as approved by the Department of Biological Sciences.

Foreign Languages

Most graduate schools require some proficiency in one or two foreign languages. Those who contemplate graduate studies in Biological Sciences are advised to include 6 semester hours of a foreign language in their program.

Transfer to Professional Schools

Students who begin their studies at Simon Fraser University may wish to transfer to the undergraduate professional schools of Agriculture, Dentistry, Forestry, Home Economics, Medicine, Nursing, Pharmacy and Veterinary Medicine. Since admission requirements of these schools vary widely, students should consult with the Head of the Department of Biological Sciences well in advance of beginning their university program.

Description of Courses

Biological Sciences

101-4 Introduction to Biology

The elementary facts and principles of biology; the fundamental properties and functions of microorganisms, plants, and animals; their molecular, microscopic and visible structure. (3-1-0)

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(Approved)

102 - 4 Introduction to Biology

A continuation of Biol 101-4. Biol 101-4 and 102-4 may be taken in any order.
(3-1-0)

201-3 Cell Biology and Biochemistry

A study of the properties and functions of cells, including molecular organization and ultrastructure, energy relations, nutrition and physiology (3-1-0)
Prerequisite: Biol 101-4 and 102-4.

202-3 Human Genetics

Principles and concepts concerning cell reproduction and basic genetics treated comparatively in man, animal, plant and microbe. (3-1-0)
Prerequisite: Biol 101-4 and 102-4.

203-3 Developmental Biology

Comparative studies of plant and animal cells and tissues; ultrastructure, growth and differentiation of cells, tissues and organs; embryology. (3-1-0)
Prerequisite: Biol 101-4 and 102-4.

204-3 Introduction to Ecology.

Effects of environmental factors; distribution of plants and animals; population dynamics; variation, adaptation and evolution. (3-1-0)
Prerequisite: Biol 101-4 and 102-4.

305-3 Animal Physiology

Organ physiology, homeostasis.
Prerequisites: Biol 101-4, 102-4, 201-3, 203-3. (2-1-3)

306-3 Invertebrate Zoology

Morphology, taxonomy and phylogeny. (2-0-3)
Prerequisites: Biol 101-4, 102-4.

316-3 Vertebrate Zoology

Comparative anatomy; evolution and phylogeny. (2-0-3)
Prerequisites: Biol 101-4, 102-4, 203-3.

326-3 Non-vascular Plants

Morphology, reproduction and phylogeny. (2-0-3)
Prerequisites: Biol 101-4, 102-4, 201-3

336-3 Vascular Plants

A survey emphasizing form, structure, reproduction and phylogeny. (1-1-3)
Prerequisites: Biol 101-4, 102-4.

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315-3 Plant Physiology

Physiological processes in plants including photosynthesis, respiration, transpiration, absorption, translocation and hormone action. (3-1-0)
Prerequisites: Biol 101-4, 102-4, 201-3 and 203-3.

425-3 Physiology Laboratory

Techniques in both plant and animal physiology.
Prerequisites: Biol 101-4, 102-4, 201-3, 203-3 and 305-3 or 315-3. (0-0-6)