

List of Suggested Electives

Note: These courses may not be offered every year. Students that have completed the diploma have all the prerequisites (min. "C-") to take the below listed courses.

- ASTR 311 Exploring the Universe
- ASTR 312 History of Astronomy and Cosmology
- BIOL 305 Animal Physiology
- BIOL 315 Parasitology
- BIOL 320 Aquatic Ecosystems
- BIOL 322 Terrestrial Ecosystems
- BIOL 329 Vertebrates of BC
- BIOL 332 Microbial Ecology
- BIOL 351 Population and Community Ecology
- BIOL 357 Entomology
- BIOL 358 Comparative Vertebrate Zoology
- BIOL 360 Intro to Animal Behavior
- BIOL 395 Tropical Ecology
- BIOL 402 Evolution
- BIOL 403 Current Topics in Biology
- BIOL 415 Ecological Parasitology
(BIOL 315 is a prerequisite)
- BIOL 457 Biodiversity and Conservation Biology
- CHEM 301 Aqueous Environmental Chemistry
- CHEM 302 Atmospheric Environmental Chemistry
- CHEM 312 Principles of Instrumental Analysis
- FISH 327 Salmonid Husbandry
- FISH 331 Advanced Fish Culture
(One of FISH 327 or FISH 331 is a core requirement)
- FISH 353 Applied hydrology
- FISH 490 Directed Studies
- FRST 328 GIS for Natural sciences
- FRST 351 Forest Pathology
- FRST 352 Forest Insect Pest Management
- GEOL 301 Cave & Karst Landscapes and Systems
- GEOL 304 Hydrogeology
- GEOL 412 Climate Change: Past, Present, and Future
- GEOG 350 Natural Resource Management
- INTD 494 Integrated Seminar in Natural and Cultural
Resource Management
- MGMT 381 Entre/Intrapreneurship
- MATH 346 Mathematical Biology
- RMOT 306 Environmental Monitoring
- RMOT 357 Research Methods in Natural Resource
Management
- RMOT 400 Fisheries Conservation and Management
- RMOT 401 Wildlife Management



Bachelor of Science in Fisheries and Aquaculture

4-year Degree Program

Options to take Courses Elsewhere

Most university-level courses offered at the Bamfield Marine Station during Fall or Summer sessions are also accepted. The Bamfield Marine Station offers high quality courses and a unique West Coast experience. Accredited Science courses offered at many other universities may also be acceptable as either Core or Science elective courses. Students should, however, consult with the department Chair before including such courses in their degree planning.

Discussions are underway to formalize other exchange options at international universities including Norway, Thailand and Australia.

Start Date and Application Deadline

Students can start the program in September. Applications are accepted after November 15 for the following September. Applications received after March 31 will be reviewed, depending on space availability.

Financial Assistance

Financial assistance is available to students demonstrating financial need. Applications should be made eight to ten weeks prior to the start of your program. For more information, please visit www.viu.ca/financialaid

Further Information

The Vancouver Island University Calendar is available online. Visit our website at www.viu.ca/programs. Students planning a career or long-term academic program are urged to discuss their goals with an Educational Advisor before registering – (250) 740-6410.

The department website is available online at viu.ca/fisheries. To view video clips of student projects and research visit our website at www.youtube.com/user/FishAquaMalaspina.

How to Apply

Students can apply online at www.pas.bc.ca or obtain an *Application for Admission* form, which is available from regional secondary schools, or from Vancouver Island University Registration Centres at the Nanaimo, Duncan, Powell River or Parksville-Qualicum campuses.

When the Registration Centre confirms that you have been admitted, you will be advised of when and how to register and pay for your courses.

About Vancouver Island University

Vancouver Island University is a comprehensive post-secondary institution located on beautiful Vancouver Island, in British Columbia. Our main campus is located in Nanaimo, and we have regional campuses in Duncan and Powell River, and a campus centre in Parksville. More than 14,000 full-time and part-time students are enrolled in academic, applied, career/technical, vocational, trades, and developmental programs leading to certificates, diplomas and degrees.

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Advising: (250) 740-6410

Financial Aid & Awards: (250) 740-6423

Registration Tel: (250) 740-6400 | Fax: (250) 740-6479

www.viu.ca

The information contained in this guide is accurate at the time of printing. Vancouver Island University reserves the right to make such changes as necessary, including cancellation and adjustment of courses.

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Fisheries and Aquaculture has long been an area of specialization at Vancouver Island University. VIU has an international reputation in fisheries and aquaculture applied research, technology transfer, training, and education. VIU boasts an extensive array of facilities and equipment: three cool-water hatchery complexes; a warm-water hatchery; salt-water system; fish disease laboratory; lake study field station; oyster farm; sturgeon, trout, and wild and cultured salmon research programs. The proximity of VIU to fresh-water lakes and streams, as well as to the ocean and estuaries allows fieldwork in these habitats to be a central part of the students' education.

The new Centre for Shellfish Research (CSR), located beside the Department of Fisheries & Aquaculture, was created to facilitate the emergence of the BC shellfish aquaculture industry as a sustainable economic engine for healthy, vibrant coastal communities. There are many opportunities for students to participate in CSR research projects.

The Fisheries and Aquaculture department at VIU has been a leader in white sturgeon research for more than 20 years and is the only academic institution in Canada to have captive white sturgeon broodstock. With construction of the new International Centre for Sturgeon Studies (ICSS) completed, VIU is poised to provide additional training and opportunities to students and significantly expand knowledge about this prehistoric fish.

Furthermore, the federal government's Pacific Biological Station in Nanaimo provides access to numerous acclaimed fisheries scientists and one of Canada's best libraries in this field. Fisheries (sports and commercial) and aquaculture are immensely important throughout the world and are key to the economy (and employment) in British Columbia.

The B.Sc. in Fisheries & Aquaculture has been designed to offer students a great deal of flexibility, and there are several routes through this program. Students may begin in year one and complete the program at the end of year four. **Alternatively they may complete the two-year Fisheries & Aquaculture Technology diploma program and then proceed to the B.Sc. with up to two years (60 credits) of advance credit. Most students elect this pathway.**

Undergraduate Research Project

In fourth year, students may choose to complete an Undergraduate Research Project in FISH 491. For this course, students will have a Faculty Project Advisor (in some cases faculty may be from another institution) and will carry out their research under the direction of this Advisor. Students not wishing to pursue a research career may take two upper-level Science electives including FISH 490 Directed Studies).

Electives

Students are encouraged to augment their program by selecting relevant electives from a variety of disciplines (see list of suggested electives below).

Admission Requirements

Admission to the Bachelor of Science in Fisheries & Aquaculture can take place at the first, second or third-year level.

Admission to third year requires completion of a minimum of 54 credits of university study, see Program Outline. Advanced standing may be granted for previous course work.

Courses in first year have prerequisites. To satisfy all first-year course prerequisites, students must complete the following B.C. Secondary School courses, or equivalent:

- English 12 with a minimum grade of "C." (Note: A minimum grade of "C+" is required for English 111.)
- Biology 11, Chemistry 12, Mathematics 12, and Principles of Physics 11, all with a minimum grade of "C+."
- Biology 12 and Physics 12 are recommended but not required.
- Some seats are available for students who have completed Chemistry 11 with a "C+" but have not completed Chemistry 12.

Students who are lacking any or all of the above-noted prerequisites for first-year courses should speak with a VIU Advisor about upgrading courses.

Note: Enrolment in this program is limited. Students who meet or exceed the minimum admission requirements may not necessarily be admitted to the program.

Admission following completion of VIU's Fisheries & Aquaculture Diploma program

Students who successfully complete the Diploma in Fisheries & Aquaculture program at VIU will be given up to two years (60 credits) of advance credit towards the B.Sc. in Fisheries and Aquaculture.

Students admitted in this manner will likely complete first-year Science courses as per Program Outline, then go on to complete the remainder of the program in an additional two years.

Transfer Credit

Students holding a two-year diploma in a field related to the biological sciences may receive advanced standing, depending upon their program.

All students who request advanced placement in the program must consult with the Department Chair.

Degree Requirements

Note: institutional B.Sc. requirements are undergoing changes; please check the website www.viu.ca/programs or contact the Advising Centre for details.

Program Outline

YEAR 1

- Concepts in Biology or Introductory Zoology
- Aquatic Plant Ecology and Culture
- Chemistry Fundamentals I/II
- Calculus I/II
- Physics for the Life Sciences I/II
- Degree English Requirements

YEAR 2

- Invertebrate Zoology
- Larval Rearing and Invertebrate Culture
- Fish Husbandry
- Fish Habitat Assessment and Rehabilitation
- Principles of Biochemistry
- Genetics
- Organic Chemistry I
- Statistics I or Intro to Statistics
- Life History and Management of Salmonids
- Stream Hydrology
- Hydraulics and Recirculation

Note: Because of scheduling, some courses listed in second year may have to be delayed until third year and replaced by electives in second year. Students should plan their program with the Fisheries & Aquaculture Chair.



YEARS 3 and 4

- Salmonid Husbandry or Advanced Fish Culture
- Diseases of Fish and Shellfish
- Aquaculture Practices I & II
- Project in Husbandry IV
- Summer Field Practicum
- Environmental Chemical Analysis
- Biometrics
- Lake and Stream Ecosystems
- Coastal and Estuarine Ecosystems
- Ichthyology
- Fisheries Management
- Directed Studies and 1 upper-level science elective or Undergraduate Research Project

