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Science and Technology Programs

Fisheries and Aquaculture Technology

Credential:
Diploma
Options:
Co-op
Program Length:
2 Years

The Program

The program is designed to develop well-rounded technologists with a broad background in the practical and academic skills of fish and invertebrate culture, fisheries habitat and fish stock assessment, wild stock management, business management, and environmental control and planning.

Both the “why” and “how” are presented through formal lectures and practical experience. The selection of program material is designed to give a broad theoretical background to provide flexibility, as well as foster a professional attitude toward a future career. Students will spend approximately 25 per cent of their time on “hands-on” fisheries and aquaculture projects on- and-off campus.

The first year provides a foundation in such basic conceptual areas as statistics, biology, English, habitats of fish and fish rearing methods. There is a weekly practicum, in which students are sent into the field for a day to work in various aquacultural or fisheries facilities (salmonid hatcheries, spawning channels, wild fish projects, oyster farms, invertebrate hatcheries and others), and students also work one half day each week on aquaculture or fisheries field projects on campus (trout farm), or in nearby satellite University facilities (wild salmon hatchery, sturgeon and algae labs). Many courses also involve significant field experience. Over the two years this practical work experience exposes students to a wide variety of activities, and introduces them to the facilities, organizations and personnel important in their future careers.

Students will work in fisheries or aquaculture summer jobs between their first and second year. Assistance in finding jobs is provided by VIU Faculty and staff, and students will receive credit for the summer practicum courses on completion of required written reports and oral presentation. There is also a co-operative education option that provides additional work experience.

In the second year, students are exposed to more advanced and specialized topics in fisheries and aquaculture. These include engineering courses for both fisheries (hydrology with a stream surveying component) and aquaculture (e.g., hydraulics and hatchery design), as well as special courses in aquaculture. There is a special field course on practical limnology in which students work and live, for a week, on the shores of a remote lake under flycamp conditions. Both the second-year weekly practicum and project courses may be designed by the student to emphasize areas of special interest.

The program is limited to a maximum of 26 full-time students per year, of which 14 can be co-operative education students. The one-year program is a limited-entry option for university graduates with degrees in biology, zoology or related sciences. In this case, students complete the requirements for the diploma in one year, plus one summer practicum (see below for admission requirements).

Students wishing to take the program on a part-time basis, or wishing to attend single courses may do so, although if space is limited, which is often the case, preference may be given to full-time students.

In addition to the many scholarships available to all VIU Students, there are numerous special awards for Fisheries and Aquaculture students, ranging in value from $300 to $2,500. For more information contact the Financial Aid & Awards office.

Advance Credit

Students may be granted advance credit for courses taken at VIU or elsewhere. Credit is granted in consultation with the Admissions office, course instructor and program Chair and, in some cases, may involve a written or verbal course challenge.

Program Outline

Year 1	Credits
FISH 100T - (Introductory Field Trip)	0
FISH 127 - (Fish Husbandry II) *or*, FISH 327 - (Salmonid Husbandry)	3
FISH 124 - (Biology of Fishes) *or*, FISH 324 - (Ichthyology)	4
FISH 132 - (Aquatic Habitats)	3
FISH 162T - (Shop Skills)	1
FISH 171T - (Aquaculture Practicum I)	1
FISH 172T - (Aquaculture Practicum II)	1
FISH 174T* - (Preparation for Co-operative Education Employment I)	(1)
FISH 175T* - (Co-operative Education Placement I)	(9)
FISH 191T - (Project in Husbandry I)	1
FISH 192T - (Project in Aquaculture II)	1
FISH 204 - (Aquatic Plant Ecology and Culture)	4
FISH 211 - (Life History and Management of Salmonids)	3
FISH 227 - (Fish Husbandry I)	3
BIOL 121 - (Introductory Zoology) *or*, FISH 123 - (Concepts in Biology)	4
ENGL 115 - (University Writing and Research)	3
MATH 181 - (Intro to Statistics)	3
Total Credits	**35 or 45**

***** *Required if in the cooperative education program only.*

Special Session	Credits
FISH 173T - (Work Experience)	1

Year 2	Credits
FISH 205 - (Invertebrate Zoology)	4
FISH 210 - (Trout Culture)	3
FISH 222 - (Larval Rearing & Invertebrate Culture)	4
FISH 223 - (Introduction to Fisheries Management)	3
FISH 231 - (Warm Water Culture) *or*, FISH 331 - (Advanced Fish Culture)	3
FISH 241 - (Fish Health) *or*, FISH 341 - (Diseases of Fish and Shellfish)	4
FISH 253 - (Fisheries Engineering I—Hydrology) *or*, FISH 353 - (Applied Hydrology)	3
FISH 254 - (Fisheries Engineering II—Hydraulics II)	3
FISH 271T - (Aquaculture Practicum III)	1
FISH 272T - (Aquaculture Practicum IV)	1
FISH 274T* - (Preparation for Co-operative Education Employment I)	(1)
FISH 275T* - (Co-operative Education Placement II)	(9)
FISH 281 - (Fisheries Field Techniques)	3
FISH 291T - (Project in Aquaculture III)	1
FISH 292T - (Project in Aquaculture IV)	1
FISH 453 - (Fish Habitat Assessment and Rehabilitation)	3
Total Credits	**37 or 47**

***** *Required if in the cooperative education program only.*

Further Studies

Bachelor of Science in Fisheries & Aquaculture

VIU also offers a Bachelor of Science in Fisheries & Aquaculture degree. The program is an integrated, research-based approach to the aquatic sciences, including courses similar to those offered in the diploma program.

There are several routes by which students can attain the B.Sc. in Fisheries & Aquaculture. They may enter this program directly in year 1 and proceed through four years of work to the degree, or students who wish to combine the practical aspects of the Technology Diploma in Fisheries and Aquaculture with further academic education may wish to consider entry into the degree program after completion of the diploma program. Taking this path will result in two credentials: a Diploma in Technology and a B.Sc. in Fisheries & Aquaculture, which may be a very useful combination when entering the job market.

Students in the Diploma program who are interested in going into the B.Sc. program should make this desire known to their instructors in Fisheries & Aquaculture. In numerous cases, the B.Sc. version of the required Diploma course can be taken instead of, and at the same time as, the required Diploma course. By doing so, students will save both time and money in their quest for their Diploma and B.Sc. in Fisheries & Aquaculture.

Students also have the option of graduating from the two-year diploma program and later, after some years of work, returning to VIU to complete the B.Sc. degree. Students with a strong background in science may wish to consider selecting courses, which may contribute up to two years' credit towards a B.Sc.,Fisheries & Aquaculture degree. Students from other degree programs, including those from other universities and colleges, may enter the B.Sc. program in third year. As with other Fisheries and Aquaculture programs, the number of placements is limited and admittance is

determined by an interview, a general arithmetic skills test, combined with grade averages in courses previously taken. Students should also be aware of the B.Sc., major/minor in Biology. Contact an Advisor or program Chair for further information.

Post-Degree Diploma in Fisheries & Aquaculture (one year)

Program Website

Those with a B.Sc. in Biological Science from VIU or elsewhere may qualify to complete the Technology Diploma program in one year. A limited number of students will be permitted to enroll in this option. The program will be tailored to reflect the student's advanced background and experience.

Admission guideline requirements to this option are:

- minimum "B" average overall in university courses;
- interview;
- permission of department.

Fisheries and Aquaculture Extension Program

Specialized Programs and Courses

The Fisheries and Aquaculture Extension program (FAEP) specializes in developing, coordinating and delivering specialized and customized educational programs and courses for industry advancement, technology transfer, and upgrading of industry personnel. Courses and programs include on-and off-campus offerings that focus on the needs of a wide variety of organizations including other institutes, government agencies, First Nations, private companies, and associations. Duration of extension courses varies from one day to three weeks, whereas specialized programs can include accredited diploma programs that may range from 6 months to 2 years. The FAEP welcomes input and suggestions from industry on pertinent course topics.

Workshops for Industry Advancement and Technology Transfer

The FAEP also cooperates in the initiation, coordination and delivery of workshops that focus on a wide variety of relevant fisheries and aquaculture topics. These workshops are often conducted in collaboration with government agencies, institutes, and industry partners. They usually include integral involvement by local, national, and international participants who have specific expertise in the topic of interest. The FAEP welcomes collaborations with, or suggestions from, industry on current issues and topics for future workshops.

For further information please call the extension program Chair, 250-740-6364, fax 250-740-6480, or email FAEP@viu.ca.

National Research Council of Canada

The National Research Council has established an office in the Aquaculture Department at Vancouver Island University to provide services of NRC's Industrial Research Assistance Program (IRAP), especially applied aquaculture research, to the North Vancouver Island region. The program involves either direct extension services or funding for research and development projects. For further information, please contact Dr. Warren Nagata, c/o Fisheries & Aquaculture Department at Vancouver Island University, 250-740-6348.

Completion Requirements

Grades for individual courses are awarded as described in the Grading Scale section of this Calendar. The program has minimum standards as follows:

- Registration in the second, third and fourth semester requires the satisfactory completion, with grades of “C-” or better, of all the courses in the previous semester. In the event that a student achieves less than “D” in any Aquaculture or Fisheries course, registration in any other Aquaculture course may be denied or, at the discretion of the instructor, a satisfactory opportunity to improve the grade to “C” may be made available, in order to allow the student to progress. Application of this clause is subject to review by program coordinator and affected course instructors.

- Practicum courses (Aqua 171T, 172T, 271T, 272T) will be automatically assigned an “F” if students miss more than one session at their field station, without prior notification to the station. An “F” in any of these courses will result in suspension from the program. Students must satisfactorily complete all courses in the program. Students may not graduate with more than two “D”s.

- Students who have more than two “D”s, or one “D” and an “F” or two “F”s must withdraw from the program. They may reapply in the next year and make up the “D”s or “F”s to a “C” grade or better.

- For more information regarding the above, students admitted to the program are advised to read the “Student Guide” issued in the first week of classes.

Admission Requirements

- General admission requirements apply.
- English 12 with minimum “C” grade, or equivalent.
- A minimum “C” grade in one of Principles of Mathematics 11, Applications of Mathematics 11, or Foundations of Mathematics 11, or equivalent.
- Biology 11 with a minimum “C” grade, or equivalent.
- Interview may be required.

Recommended for Admission

- Physics 12 and other science courses are highly recommended.
- Additional English courses that lead to improved writing skills are invaluable.

Notes on Admission

- Admission to this program will be based on previous academic performance (high school, college and/or university), and may also require a basic arithmetic test and an interview. The interview will centre on general knowledge of the fisheries and aquaculture fields, and assess the applicant’s understanding of a career in fisheries and aquaculture in Canada, and specifically in British Columbia.
- Students may take the program on a part-time basis, but admission to courses will be subject to prerequisites, where applicable, and space in the classroom after full-time students have been served.
- Applicants are strongly urged to talk to Fisheries and Aquaculture staff about the program and application procedures, prior to the interview.
- Students will complete Occupational Level I First Aid, in accordance with Workers’

Compensation Board requirements, and Transportation Endorsement courses during the first year of the program.
- Students interested in continuing on to the Bachelor of Science in Fisheries and Aquaculture degree will require a minimum “B” in either Principles of Mathematics 12 or Pre-calculus 12.
- Enrolment in this program is limited. Students who meet or exceed the minimum admission requirements may not necessarily be admitted to the program.

Co-operative Education:

The program offers a Co-operative Education option, which is designed to give two or more terms of paid work experience to students completing their diploma. The timing of the Co-operative Education work terms may vary, depending on students’ interest, and availability of fisheries work. The Co-operative Education option is available for a maximum of 14 students.

For details of Cooperative Education work placements and timing, please contact the Fisheries and Aquaculture Co-operative Education liaison. Students in Co-operative Education work terms pay a co-op fee.

Career Opportunities

Careers in fisheries and aquaculture typically involve both outdoor work related to the rearing or assessment of aquatic stocks, and indoor activities related directly to field or support activities, including personnel and business management. Aquaculture is usually practiced in relatively remote areas.

It should be noted that the skills required for both the aquaculturist and the field fisheries technician broadly overlap, and that aquaculture plays an increasingly important role in wild stock management through the employment of hatcheries and fish stock enhancement. Students in this program are prepared for both career areas and after graduation frequently work in both.

Other placements include laboratory, sales, research and international opportunities. Many career opportunities are available to graduates willing to work in outdoor conditions, often in remote areas. Such work often includes field work with wild stocks including habitat assessment in both fresh and salt water, estimates of wild stock population, habitat restoration, research assistance, and monitoring of harvests.

Surveys of former students show a high rate of employment for graduates of the program and a similar high degree of employer satisfaction with our graduates. As of the last survey, over 70 percent of students who have graduated from this program over the previous 15 years are employed in the field of study, and career satisfaction is high.

Start Date and Application Deadline

The program starts in September and applications are accepted between the first business day in October and March 31. For further information regarding late applications and program contacts check the Program Availability List.

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