Selkirk College
School of Environment and Geomatics (ENVR)

Recreation, Fish, and Wildlife Technology Diploma (RFW)

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MATH 160 Technical Math

ENVR 160 Surveying and Field Measurements

ENVR 162 Applied Botany and Ecosystem Classification

ENVR 164 Applied Geology and Geomorphology

ENVR 190 Computer Applications I

TWC 150 Introduction to Technical Communications I

ENVR 1 Winter

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RFW 251 Environmental Legislation and Policy

RFW 271 Applied Research Project

ENVR First-Year Courses

ENVR 1 Fall

ENVR 150 Hydrology I

This course is an introductory study of water in our environment. Learners will cover the natural processes which affect the hydrologic cycle, practical applications in collection and analyses of field and laboratory data, and use of standard techniques and equipment common in the environmental industry.

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MATH 160 Technical Math

This is an applied math course, focusing on the technical math skills required in Renewable Resources work. Topics include: computation, 2-D and 3-D trigonometry, conversion factors, derived and empirical formulas, exponentials and logarithms, and map scales.

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ENVR 160 Surveying and Field Measurements

This course covers the practical use of common survey instruments and techniques used by environmental management technicians. Students will learn about the use and maintenance of basic surveying instruments and equipment; measurement of distance, direction, and elevation; and obtaining and recording topographic and planimetric data. Students will cover measurement and the sampling methods used to assess, classify, and evaluate vegetation of forest and range land, wildlife populations, streams, and air and water quality. Emphasis is placed on proper techniques for field plot implementation, collection methods for various types of data, and the proper use of measurement equipment.

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ENVR 162 Applied Botany and Ecosystem Classification

This course is an introduction to the basics of Botany and Forest Ecology. Topics include the identification of approximately 100 native plants that occur in the West Kootenay. Ecosystem description follows the Biogeoclimatic Ecosystem Classification system. Lectures cover topics in basic cell biology, photosynthesis, respiration, transpiration, translocation, ecosystem classification and the distribution of various ecosystems in British Columbia. Approximately 70% of labs occur in the field.

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ENVR 164 Applied Geology and Geomorphology

The course will cover identification of common rocks and minerals, landforms and soils of British Columbia. Learners will be introduced to the study of physical geology and geomorphology in relation to management of the forest environment and landscape. Learners will gain skills and knowledge in rock and mineral identification, describing physical and chemical qualities of soils, and landform/terrain identification and classification. Skills will also be developed with respect to interpretation of geology, landforms and soils for environmental management.

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ENVR 190 Computer Applications I

This course builds upon the basic computer concepts required in the computer competency prerequisite. Students revceive training in advanced computer applications and techniques specific to the

environmental technology programs. Emphasis will be placed on the use of word processing, spreadsheets, database applications, web design, and presentation software. Common software use includes Microsoft Office and Open Office.

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TWC 150 Introduction to Technical Communications I

A review of basic English skills is undertaken in this course. Also included is an introduction to general principles in written technical communication and its application to environmental technology. Classroom sessions focus on developing writing skills, academic research and documentation, the organization and interpretation of data, oral presentation skills, and job search techniques.

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ENVR 1 Winter

MATH 190 Resource Statistics

This course covers standard statistical tests and techniques and the application of these statistical measures in renewable resources management. Students will learn how to summarize data (both numerically and graphically), basic probability, use of several discrete and continuous distributions (including the normal distribution) to calculate probabilities, and how to infer information about a population by performing confidence intervals and hypothesis tests.

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ENVR 154 Applied Mapping and Remote Sensing

This course emphasizes the practical application of maps and air photos in resource management. Students become familiar with types of maps and air photos, indexing systems, use of maps and air photos in the field, map reading and measuring techniques, photo interpretation and measuring techniques, obtaining of data for mapping, stratification of air photos, and remote sensing techniques. This course will also cover web-based remote sensing technologies and applications in environmental management.

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ENVR 161 Global Positioning Systems and Navigation **(New Course)**

This course will cover theory and application of Global Positioning Systems in environmental management. Students will cover techniques to mark and navigate using handheld GPS. In addition, techniques will cover uploading and downloading waypoint files and tracks to various software packages and displaying the results in digital and paper map applications. Use of handheld GPS units to collect fixed area survey data will be covered. As well, students will learn techniques for safe field navigation in remote field settings using map, compass and GPS equipment.

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ENVR 158 Introduction to GIS

This course will provide training in Computer Drafting, Geographic Information Systems (GIS) and Global Positioning Systems (GPS) relevant to the environmental technology field. Emphasis will be placed on developing hands-on expertise with drafting and GIS software such as ArcGIS and Softree. GPS data collected in the field will be integrated into mapping exercises for analysis and display.

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ENVR 170 Fish and Wildlife Ecology

This course will cover identification and ecology of vertebrate animals, habitat requirements, and habitat disturbance implications. Learners will gain experience in applying guidelines and management strategies to minimize impact of other resource uses on fish and wildlife habitat and species.

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TWC 151 Introduction to Technical Communications II

This course is an introduction to general principles in written technical communication and oral presentation techniques. Lectures focus upon business correspondence, the informal and formal report, technical style, and graphic illustration. Students practice delivery techniques for oral presentations of technical data in the environmental technology fields. Collaborative activities and teamwork skills are practiced and encouraged.

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ENVR 163 Terrestrial Ecology and Biology

This course builds upon the concepts from ENVR 162 with further studies of local forest ecosystems. Students will Identify key forest structural components and study the role that disturbance (such as fire), environmental gradients, and competition play in defining a species' niche. Participants will also examine the role of primary and secondary growth, nutrient uptake, reproduction, and survival mechanisms for plants. Winter plant identification, ecosystem form and function, and plant adaptations to timberline will also be examined. A practical field-based assignment will form a major portion of the term assessment.

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RFW Second-Year Courses

RFW Spring

RFW 255 Spring Field School

During a two-week course in the spring, students gain practical skills directly related to their field of studies. Activities may include electro-fishing, flat-water canoeing, and wildlife enhancement. This course is scheduled to take place after final exams in late April (ten days, seventy hours).

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RFW Fall

RFW 200 Field Trip Study

During the 4th semester, second-year RFW students will participate in field-based studies away from the Castlegar campus. This two-week field trip provides students with the opportunity to refine field technical skills within different ecosystems and regions of the province. Students will undertake experimental field activities in two focused areas of study; Outdoor Recreation Pursuits and Fish and Wildlife Management. Students will be actively involved in the planning for these trips and will be presented with opportunities to develop team skills, leadership and professionalism throughout the course duration.

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RFW 256 Backcountry Risk Analysis and Mitigation I

In this course, students integrate the knowledge and skills acquired in other program courses to identify, analyze, and manage areas of public and occupational risk within backcountry environments. Human, terrestrial, aquatic, and environmental hazards and risk are explored including: an examination of leadership and decision-making skills, natural hazard analysis, land-use planning, risk management and mitigation, advanced navigation techniques, backcountry rescue, meteorology, and field weather forecasting.

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RFW 262 Ecosystem-based Management

This course expands on environmental assessment skills and knowledge of ecological principles learned in first year classes. Students develop skills in the recognition of prominent forest insects, fungi, abiotic agents and invasive non-native species. The course emphasizes the application of ecological knowledge in resource management activities and strategies. Applied topics include: ecological restoration, fire ecology, wildlife/danger tree assessment, riparian area management, ecological assessment, wetland ecology management, and management of invasive non-native weed species

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RFW 263 Outdoor Recreation Operations and Management

This course is designed to prepare the student for employment in the field of outdoor recreation, particularly parks. The variety of organizations offering outdoor recreation opportunities in B.C. and their roles in the province are examined. Practical field skills such as trail and campground design, construction, and maintenance as well as analytical skills such as monitoring and managing impacts, assessing public safety, developing site plans, and incorporating multiple natural resource and social values in protected area management will be studied and practiced. Examples of real contemporary recreational management issues are used to make the course current and relevant.

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RFW 272 Techniques in Wildlife Management I

This course prepares the student for immediate employment as a wildlife technician and park interpreter in British Columbia through instruction in wildlife management theory and the application of techniques used in wildlife management.

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RFW 280 Techniques in Aquatics and Fisheries I

This course covers the ecology and management of freshwater fish and aquatic ecosystems, including standard field and laboratory techniques used to sample these ecosystems. The emphasis is on evaluating, assessing and managing freshwater ecosystems in BC.

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RFW 290 Computer Applications

This course introduces computer applications most commonly used in the resource management industry. Instruction includes digital mapping with RoadENG and ArcGIS 9 incorporating local and provincial data. Topics such as traverse reduction, map assembly and display, and data transfer are covered. GIS file management, basic data translation and data analysis are covered through hands-on exercises, as data is manipulated and displayed using these software tools. Students will emerge from this course with a set of GIS skills.

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RFW Winter

RFW 257 Backcountry Risk Analysis and Mitigation II

This course extends the study of natural hazard assessment and land management to winter backcountry environments. The course is delivered as a project-based analysis of a local provincial park or recreation area, in which students identify and analyze avalanche terrain and site-specific snowpack characteristics for the risk of human and structural exposure to snow avalanches. Topics include avalanche forecasting and public safety, land use planning, hazard mitigation, techniques in snowpack assessment and monitoring, avalanche rescue and hazard mapping. Successful students receive a certificate in avalanche safety recognized by the Canadian Avalanche Association.

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RFW 265 Commercial Recreation Management

Students will be exposed to the elements of commercial recreation operations from the proposal stage to the delivery stage, including the nature and demand for outdoor commercial recreation activities. Particular attention is paid to the current policies and regulations governing commercial recreation in the province. Additional skills and knowledge related to contract management and the development and evaluation of project proposals will be developed.

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RFW 273 Techniques in Wildlife Management II

This course is a direct extension of RFW 272, continuing the development of an understanding of the ecological principles on which wildlife management is based.

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RFW 281 Techniques in Aquatics and Fisheries II

This course covers the ecology and management of freshwater fish and aquatic ecosystems, including standard field, laboratory and office techniques used to sample in these ecosystems. The emphasis is on evaluating, assessing and managing freshwater ecosystems in BC. This course is a continuation of the material in RFW 280.

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ENVR 250 Aboriginal Peoples and Environmental Management **(New Course)**

This course introduces students to the Aboriginal Peoples of Canada and their role in resource management. Topics will cover Aboriginal cultures, languages and governance; history since contact and the Indian Act; Aboriginal rights and associated landmark court cases; BC treaty process and interim agreements; the Heritage Conservation Act; and working effectively with Aboriginal Peoples. In addition, from a Traditional Ecological Knowledge perspective, learners will engage in team-lead projects involving ecosystem-based management, sustainable management, and environmental management systems. This course involves a team-based model of learning and active participation in scenarios and round table discussions.

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RFW 251 Environmental Legislation and Policy

This course provides an overview of the environmental legislation used in resource management in British Columbia. The course begins with an introduction to statute law and the court system, and progresses to interpreting specific environment acts, regulations and policies. There is a strong focus on research skills. Local case studies are used when possible.

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RFW 271 Applied Research Project

This course is a guided independent study of an environmental management topic suitable to the field of study. Learners are required to prepare a project proposal and data collection schedule in consultation with a faculty advisor. Research techniques using library and online resources are required as well as accurate data collection and synthesis. This course culminates with the submission of a technical report to current industry standards and presentation of the research results at the annual spring conference held late in the Spring semester.

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