

B.Sc. in Environmental and Conservation Sciences Class Schedule, Fall 2024

Bachelor of Science Courses:

Note that dual-registration is required for these courses, with on-line registration through Bear Tracks for University of Alberta (Class Number in **RED**), and online registration through Banner for Yukon University (course registration number, CRN, in **BLUE**) (contact Program Advisor for details).

NS 115 – Indigenous Peoples and Technoscience (UA 800-50570; YU CRN NA) Instructor: TBD (in Edmonton) - **ONLINE ASYNCHRONOUS** (delivered from Edmonton)

This course introduces students to the long and complicated relationships between science and technology fields, broader dynamics of colonialism, and increasing demands for Indigenous governance of the sciences and technologies that affect them. This course is offered fully online asynchronously through UAlberta's eClass system. This course may be an option for students who require a Free Elective or have room for a 100-level Approved Program Elective (APE) in their program. Please see an ENCS Program advisor for more information on registering in this course.

NS 200 - Indigenous Canada (cross-listed with YukonU HIST 140) (UA 800-51318; YU CRN 10050) Instructor: G. Staveley - **ONLINE ASYNCHRONOUS**

This course examines Yukon First Nations history, culture and governance. Topics covered include pre-contact cultures of Yukon, subsistence economies, social and political organizations, cultural expressions, and cultural protocols. First Nations' responses to colonialism within the context of major contact and post-contact events are analyzed. Particular emphasis is placed on the history of Yukon land claims and the emergence of First Nations self-governments. Students who have previously taken YukonU's HIST 140 for transfer credit to U of Alberta may not take NS 200 for credit. **Prerequisite:** Registration in the BSc ENCS Program.

PL SC 221 - Introduction to Plant Science (cross-listed with YukonU BIOL 210) (UA 700-53719; YU CRN 10159) Instructor: TBD

This course provides an introduction to plant biology, with an emphasis on the taxonomy of common Boreal and Arctic plant families found in the Yukon. Students will learn the tools and techniques used for the identification of plants, including the use of plant keys. Students will become familiar with the anatomy and general biological functions of vascular plants. Lectures will also cover topics relevant to the evolution, systematics, ecology, biogeography, and human use of northern plant species. Hands-on lab activities will provide students with opportunities to dissect plant specimens and learn to recognize important family and species characteristics. Additional lab activities will focus on preparation and mounting of herbarium specimens, botanical illustrations, and medicinal and food uses of wild plants. **Students must also register in the mandatory lab section, PLSC 221 Lab - Introduction to Plant Science Lab in the YukonU system (cross-listed with BIOL 210 Lab) (UA NA; YU CRN 10160).** Students who have previously taken YukonU's BIOL 210 for transfer credit to U of Alberta may not take PL SC 221 for credit. **Prerequisites:** U of A BIOL 108, or YukonU BIOL 101 and 102, or an equivalent first-year biology course; registration in the BSc ENCS Program.

REN R 105 Introduction to Environmental Science (cross-listed with YukonU ENVS 100) (UA 700-52613; YU CRN 10138) Instructor: S. Gilbert

Explores basic concepts in ecology and chemistry to help understand current problems that challenge sustainability such as human population growth, atmospheric problems, agriculture and northern contaminants. Students must also register in REN R 105L (UA NA; YU CRN 10139), the mandatory lab component of this course. Students who have previously taken YukonU's ENVS 100 for transfer credit to U of Alberta may not take REN R 105 for credit.

REN R 205 - Wildlife Biodiversity and Ecology (cross-listed with YukonU NOST 201) (UA 700-46152; YU CRN 10161) Instructor: L. Gray

A broad overview of the natural history of circumpolar northern regions. Students study the plants and animals of the North and their adaptations to the environments, and the forces that shape and have shaped the northern landscapes. Mandatory field activities, including a possible trip to Alaska (valid passport or other appropriate cross-border identification

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required). Additional fees: \$125. Students who have previously taken YukonU's NOST 201 for transfer credit to U of Alberta may not take REN R 205 for credit. NOTE: Bear Tracks lists a lab for this course in the UAlberta registration system – please disregard that (there is no lab in the Yukon offering). **Prerequisite:** Registration in the BSc ENCS program.

REN R 210 - Introduction to Soil Science and Soil Resources (cross-listed with YukonU SOIL 210) (UA 700-49767; YU CRN 10162) Instructor: M. Samolczyk

Elementary aspects of soil formation, soil occurrence in natural landscapes, soil classification, soil resource inventory, basic morphological biological, chemical, and physical characteristics employed in the identification of soils and predictions of the performance in both managed and natural landscapes. **Students must also register in the mandatory lab section, REN R 210 Lab - Introduction to Soil Science Lab in the YukonU system (cross-listed with SOIL 210 Lab) (UA NA; YU CRN 10163).** Students who have previously taken YukonU's SOIL 210 for transfer credit to U of Alberta may not take REN R 210 for credit. **Prerequisite:** Registration in the BSc ENCS Program. A university-level chemistry course is strongly recommended.

REN R 250 – Water Resource Management (cross-listed with YukonU RRMT 239) (UA 700-49444; YU CRN 10164) Instructor: D. Otto

This is a two-component course intended to teach students habitat assessment techniques for freshwater ecosystems, as well as the basic elements of hydrology. Applied aspects of limnology are emphasized. Students study how water is distributed, moved and stored on a global scale followed by the study of processes at small scale. Students who have previously taken YukonU's RRMT 239 for transfer credit to U of Alberta may not take REN R 250 for credit. **Students must also register in RENR 250L – Water Resource Management Lab in the YukonU system (cross-listed with RRMT 239L) (UA NA; YU CRN 10165),** mandatory lab component of REN R 250. **Prerequisites:** Registration in the BSc ENCS program and YukonU BIOL 101, UAlberta BIOL 108, or equivalent first-year biology course.

REN R 260 - History and Fundamentals of Environmental Conservation (cross-listed with YukonU ENST 200, formerly ENVS 200) (UA 700-46154; YU CRN 10048) Instructor: D. Lyness

A philosophical investigation of the moral and conceptual dimensions of environmental problems. Topics to be examined include: the role of ethical theory, anthropocentric, ecocentric, and aesthetic foundations of environmental ethics, deep ecology, sustainability, the ethics of climate change, eco-activism, animal rights, cross-cultural and First Nations perspectives, legal perspectives, and applied ethics of northern issues. Students who have previously taken YukonU ENVS 200 or ENST 200 for transfer credit to U of Alberta may not take REN R 260 for credit. **Prerequisite:** Registration in the BSc ENCS program.

REN R 301 Topics in Renewable Resources – Environmental Change and Fish and Wildlife Health (cross-list with YukonU ENVS 225) (UA 702-50224; YU CRN 10289) Instructor: T. Howatt

This course will be of interest to all northerners, but especially anyone interested in fisheries, wildlife, and land and resource management. The first half of the course covers the issue of long-range contaminants in northern ecosystems; what they are, where they come from, how they get here, the latest research results on levels and trends, and what it all means for northern fisheries and wildlife. The second half of the course covers a range of issues affecting the health of northern fish and wildlife including climate change, contaminants from mining, selected fish and wildlife diseases and other topics. The course will integrate both traditional knowledge and science. Students will have the opportunity to undertake practical activities and research in their own community. Students who have previously taken YukonU's ENVS 225 for transfer credit to U of Alberta may not take this section of REN R 301 for credit.

REN R 301 Topics in Renewable Resources – Power and Influence (cross-listed with YukonU FNGA 302) (UA 703-50954; YU CRN 10249) Instructor: R. Major

This course is designed to provide an overview and understanding of the forces and sources of power and influence within Indigenous social, cultural, and political arenas. Power refers to the structurally determined potential for obtaining preferred outcomes. By using Intersectionality (the theory of how race, class, gender, sexuality intersect) as an analytical tool to capture and engage the contextual dynamics of power, this course will explore traditional and modern views of power and influence within Indigenous Nations. It will draw upon a

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method of 'two-eyed' seeing and utilize guest speakers to explore ideological perspectives and the lived experience of Indigenous Nations today and how decision-makers and policymakers may influence individuals or groups exercising power and influence. Sources of power and influence, personal agency and political ideology such as capitalism, activism, globalization, media and technology, legislation and case law and civil disobedience will be identified, and their impacts explored. Finally, this course will provide an understanding of how individuals, communities, citizenries, and Indigenous nations can build power and influence by using tangible and intangible resources. Students who have previously taken YU's FNGA 302 for transfer credit to U of Alberta may not take this section of REN R 301 for credit. **Prerequisite:** Registration in the BSc ENCS program, and U of A NS 200 or YukonU HIST 140 or equivalent, and permission of an ENCS Program Advisor.

REN R 301 Topics in Renewable Resources – Introduction to the Circumpolar World (UA 701-49513; YU CRN 10058) Instructor: A. Graham - **ONLINE ASYNCHRONOUS**

Introduces students to the landscape, peoples and issues of the region. It examines the geography, biological and physical systems of the Subarctic and Arctic, then turns to the aboriginal and contemporary peoples of the region. It also surveys some of the particular issues facing the region including: climate change, economics, and political climate. **NOTE: This course is fully online asynchronously** through YukonU and University of the Arctic. Students who have previously taken YU's NOST 101 for transfer credit to U of Alberta may not take REN R 301 Circumpolar World for credit. **Prerequisite:** Registration in the BSc ENCS program.

REN R 322 Forest Ecosystems (cross-listed with YukonU RRMT 235) (UA 700-53732; YU CRN 10241) Instructor: S. Biggin-Pound

In F2022, this course will be delivered as a cross-list with the YukonU course RRMT 235/RRMT 235L Forest Management. Students who have previously received credit for RRMT 235 at YukonU may not take RENR 322 in F2022 for credit. Introduces the boreal forest as a complex ecosystem with a variety of values. Current management issues and methodologies to meet competing demands are examined. **Students must also register in the mandatory lab section, REN R 322 Lab (UA NA; YU CRN 10242).** Prerequisite: Registration in the BSc ENCS program and permission of ENCS advisor.

REN R 401 Topics in Renewable Resources - Directed Study (UA 700-46207; YU CRN 10243)

Directed study in the multiple aspects of renewable resources. Please contact an ENCS Program advisor for more information on registering in an Individual Study course. **Prerequisite:** Registration in the BSc ENCS program.

REN R 427 - Science Policy in the Canadian North (UA 700-53734; YU CRN 10244) Instructors: A. Perrin, S. Kinsella

The purpose of this course is to expose students to key themes in science policy in the Canadian North, and to prepare students for careers at the northern science-policy interface. Case studies from the Canadian North will be used to explore the main themes of the course. Topics will include the basic elements of the policy-making process and how science contributes to policy making; the process by which scientific knowledge is generated and the role science and technology plays in society; and the two elements of science policy: science for policy, and policy for science. This course is used as a substitution for ENCS 473 in the B.Sc. ENCS Northern Systems Major. **Prerequisite:** Registration in the BSc in Environmental and Conservation Sciences program.

REN R 463 – Biological Adaptation to Northern Environments (UA 700-50032; YU CRN 10245) Instructor: K. Aitken

This course will provide an overview of the study of evolutionary processes in northern environments. Topics from evolutionary biology, such as natural selection and adaptation, will be applied to species living in boreal, arctic, and tundra environments. The course will cover the unique challenges faced by animals and plants in these environments, the ways in which they have adapted to deal with these conditions, and the potential effects of climate change on northern species. **Prerequisites:** Registration in the BSc ENCS program, and U of Alberta BIOL 208, YukonU BIOL 220 or an equivalent 2nd-year Ecology course (or permission of the instructor).

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REN R 465 – “A River Runs Through It” Field School (UA TBD; YC CRN 30045) Instructor: G. Rivest

This course provides students from northern and southern locations opportunities to explore the natural and cultural history of the Yukon through experiential learning that incorporates interdisciplinary approaches to environmental, social and economic challenges in this region. The course is field-based, built around a canoe trip in central Yukon, on the Stewart and Yukon Rivers. In addition to the academic curriculum, students will gain substantial backcountry/canoe travel and team-work experience. **Prerequisite:** 3rd year university standing and registration in the BSc ENCS Program, and permission of the ENCS program advisor. **Course fees of \$900 apply, in addition to tuition.** Course runs Aug. 18-30, 2024, with additional reading assigned before the course start, and an assignment due afterwards. For more information, contact the field course coordinator, Gabriel Rivest, at rivest@ualberta.ca and visit <https://alesnorth.ualberta.ca/summer-field-school/>. This course requires manual registration in the U of A system; the field course coordinator will assist with registration. Note that while the course runs in August, it is set up as a 3-credit fall registration in the U of A system, and as a summer term registration in the YukonU system.

REN R 473 – Topics in Northern Resource Management (UA 700-53735; YU CRN 10247) Instructors: C. Beckett, J. Gonet

In-depth analysis of topical issues in northern resource management, including both ecological and socio-political dimensions, and emphasizing underlying scientific principles and adaptive management strategies. **Prerequisite:** Registration in the BSc ENCS program.

REN R 480 – Applied Statistics for Environmental Sciences (formerly Experimental Design and Data Analysis in Env Sciences) (UA 700-49293; YU CRN 10166) Instructor: K. Aitken

Focuses on problem formulation, method selection, and interpretation of statistical analysis. Covers data management and data visualization, statistical tests for parametric, non-parametric and binomial data, linear and non-linear regression approaches. Participants will gain general statistical literacy and learn how to visualize and analyze data with open-source software packages. **Prerequisites:** Registration in the BSc ENCS program, and U of A STAT 151, or YukonU MATH 105 or RRMT 202, or an equivalent introductory statistics course. Graduate students may register in this course as REN R 580/580L on permission of the instructor and their supervisor. **Students must also register in REN R 480L – Applied Statistics for Environmental Sciences Lab in the YukonU system (UA NA; YU CRN 10167)**, mandatory lab component of REN R 480.

R SOC 375 Public Participation and Conflict Resolution (cross-listed with YukonU FNGA 301 Conflict Resolution, Mediation and Negotiation) (UA 700-50215; YU CRN 10240) Instructor: TBD

This course will introduce students to theoretical concepts about negotiation, together with practical applications of these concepts. Emphasis will be placed on an interest-based approach to negotiation and understanding this approach within the broader theoretical context. First Nations cultural approaches to negotiations and dispute resolution will be explored, along with tools for improving cross-cultural awareness in negotiation situations. The role of mediation in resolving disputes will be considered, including its place in the Yukon Umbrella Final Agreement. **Prerequisites:** Registration in the BSc ENCS program, and U of A NS 200 or YukonU HIST 140 or equivalent, or permission of a program advisor.

SUST 201 Introduction to Sustainability (UA 800-50837; YU CRN NA) Instructor: TBD (in Edmonton) - **ONLINE ASYNCHRONOUS** (delivered from Edmonton)

An introduction to the history of sustainability as a concept, contemporary sustainability issues, and the diverse perspectives that disciplines and professions take on while approaching sustainability. Not available to students with credit in HGP 250 or HGEO 250. This course is offered fully online asynchronously through UAlberta's eClass system. This course may be an option for students who require a Free Elective or have room for a 100-level Approved Program Elective (APE) in their program. Please see an ENCS Program advisor for more information on registering in this course.

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Other Courses Offered by Yukon University (minimum grade of C- required for transfer to UAlberta):

BIOL 220 – Ecology (YU CRN 10122) Instructor: S. Gilbert

This introduction to the science of ecology focuses on the interrelations between individual organisms, their populations and communities. It begins by reviewing the factors that limit distributions and then considers population demography, life tables and managing harvested populations. After a review of the mathematical models to explain interspecific competition and predation, we review community ecology looking at succession, species diversity gradients, energy flow, biogeochemistry, and the role of predation, competition and disturbance in structuring communities. We conclude by considering the prospects for global change and the ecological processes that may shape these changes. Additional lab fee: \$50. NOTE: This course is the required prerequisite for several 3rd- and 4th-year courses in the ENCS program and fills the requirement for UAlberta BIOL 208. **Students must also register in the mandatory lab component of the course, BIOL 220L (YU CRN 10124).** Students without transfer credit room should register in BIOL 220/220L section 002 in the YukonU system, and in ALES 291 in Bear Tracks. **Prerequisites:** YukonU BIOL 101 (and BIOL 102 recommended), or equivalent first-year biology course.

CHEM 110 - The Structure of Matter (YU CRN 10125) Instructor: E. Prokopchuk

This course covers both the common practical aspects of chemistry as well as the theoretical principles that describe this science. Topics of study include the structure of the atom, electron configuration, the nature of chemical bonding and a look at liquids, solids and gases at a molecular level. Other topics of study include reaction stoichiometry and an introduction to organic chemistry and biochemistry. Lab sessions illustrate and reinforce most of the topics presented in the lectures. NOTE: This course is the prerequisite for REN R 210 and fills the requirement for UAlberta CHEM 101. **Students must also register in the mandatory lab component, CHEM 110L (YU CRN lab section 001 10127 or section 002 10128).** Additional lab fee: \$60. **Prerequisite:** Chemistry 11. CHEM 12 is recommended. YukonU MATH 060 is a co-requisite if student has not previously completed Pre-calculus 12/MATH 060. MATH 120/ALES 291A Math for the Life Sciences may also be used to fill the Pre-calculus 12/Math 060 requirement.

ECON 100 - Introduction to Microeconomics (YU CRN 10071) Instructor: M. Missakabo

This course discusses the terminology, concepts, theory, methodology and limitations of current microeconomic analysis. The course provides students with a theoretical structure to analyze and understand economics as it relates to individuals and businesses. In addition, it seeks to provide students with an understanding of how political, social and market forces determine and affect the Canadian economy. NOTE: This course is the required prerequisite for AREC 365 and fills the requirement for UAlberta ECON 101.