

COURSE SYLLABUS



BIOL 301.3 COURSE SYLLABUS

COURSE TITLE:	Critical Issues in Biology	TERM:	Fall 2020
COURSE CODE:	BIOL 301 (CRN 82698)	DELIVERY:	Lectures/Tutorials
COURSE CREDITS:	3 cu	START DATE:	September 4, 2020
CLASS SECTION:	01	TUT. LOCATION:	NA
CLASS LOCATION:	NA	TUT. TIME:	1:30 – 4:30 p.m. (T, W, Th)
CLASS TIME:	1:30-4:10 Friday		
WEBSITE:	Further information accessed through Course Tools		

LECTURERS:	D.P. Chivers (Coordinator) Rm. 120.7 CSRB, 306-966-4419 doug.chivers@usask.ca	TUTORIALS:	Gillian Murza Rm. 118 Biology, 306-966-4425 gillian.murza@usask.ca
	J.D. Benson Rm. 320.2 CSRB, 306-966-4404 james.benson@usask.ca	Teaching Assistants:	TBA

Catalogue Description

Examines the essential processes and principles of current, topical biological research. The course is designed to enhance the capacity to understand biological concepts, critically evaluate scientific work, develop logical and sound opinions and improve written and oral communication skills.

Prerequisite(s): BIOL 120 or BIOL 121; plus 9 credit units BIOL at the 200-level or above; plus one of STAT 245, STAT 246 or PLSC 214.

Note: This course is a requirement in the B.Sc. Four Year and Honours programs in Biology and Environmental Biology and for the Certificate in Biological Research; students in these programs should consider taking BIOL 301 as early as possible in their program.

Remote Learning Context

This course is being offered for the first time remotely. We have strived to make the best of this, noting that the remote teaching and learning context is new to most. We ask that all participants in the course interact with empathy and care. The lectures will be asynchronous and uploaded weekly to the content management system. Tutorials will be held synchronously, with links provided through the Canvas system.

Learning Outcomes

This course is intended for you to learn about issues of importance that will affect all of our lives, and to develop the tools for rational responses to those issues. The course is designed with both lecture and tutorial components. The tutorials provide a variety of opportunities to practice thinking critically and writing scientifically through feedback received at multiple points as you develop your skills.

Course Overview

An ability to think critically is essential for individuals to function effectively in society. Critical thinking allows us to make rational decisions about what to do and what to believe, understand high-level biological concepts, to give you an introduction to critical global issues that will affect the world in your adult life time, to stimulate your ability to develop logical opinions, and to improve your written and oral communication skills.

Class Schedule

PART I - DR. CHIVERS' SECTION (September 5 to October 24, 2018) (50 points out of 100)

Week 1 (Aug 31 – Sept 4; No tutorial this week)

Lecture 1 – Class introduction - Course schedule; Scope of the course; Policy about assignments and their deadlines.

Week 2 (Sept 7 – 11; Tutorial held on Tue, Wed and Thurs afternoons this week - Discussion of Protocol Assignment, Tips for Peer Review)

Lecture 2 – The basics of science and critical thinking; Understanding the scientific method.

Lecture 3 – The basics of science and critical thinking; publishing and assessing biases in science - sexism

Week 3 (Sept 14 - 18; Tutorial held on Tue, Wed and Thurs afternoons this week – Academic Integrity – Paraphrasing & Citation)

Lecture 4 – The basics of science and critical thinking; Muzzling scientists

Lecture 5 – Reading and Writing scientific papers; titles, abstracts and keywords. Introduction to assignment #2 – writing an abstract for a scientific paper

Week 4 (Sept 21 – 25; Tutorial held on Tue, Wed and Thurs afternoons this week – Abstracts)

Lecture 6 – Scientific writing continued.

Lecture 7 – Statistical inference.

Week 5 (Sept 28 – Oct 2; Tutorial held on Tue, Wed and Thurs afternoons this week – Writing Hacks)

Lecture 8 – Certainty in science – **this lecture will be the basis of your assignment on Certainty in Science**

Lecture 9 – Certainty in science continued

Week 6 (Oct 5 - 9; No tutorial held this week.)

Lecture 10 – *Guest speaker*: DeDe Dawson, Science & Scholarly Communication Librarian – Searching databases; ordering interlibrary loans.

Week 7 (Oct 12 – 16) There is no required tutorial, however, you must submit a list of three primary research articles on a critical issue of your choice. Tutorial instructors will be available in an online meeting space (TBA) for consultation.

Lecture 11 (16 Oct) – **LECTURE MID-TERM EXAM: 1:30-4:30 pm**

PART 2 - DR. BENSON'S SECTION (October 19 to December 4, 2020) (50 points out of 100)

Week 9 (Oct 19 – Oct 23; During the tutorial period, students will meet with Gillian / Dr. Benson to nominate and the topic of their critical issue (identified and studied in a scientific article from the primary literature published within the past 24 months, i.e., September 2018 onward). This topic and paper will be utilized as a subject for assignments consisting of a promotional tweet, a media release, a poster presentation, and the final essay. (Slots will be made available in a TBA online meeting space)

Due: The tweet about your critical issue is to be submitted by 5 pm, Oct 23.

Lecture 16 *Guest speaker*: TBN University of Saskatchewan Media Relations Specialist -What is a media release and how is it used to share research results? *Introduction to assignment – preparing a media release about your critical issue.*

Lecture 17 Introduction to the other topics in Part 2 of this course, including due dates for items to be evaluated. Analyzing a research paper in order to synthesize a tweet and accurate media release; proper referencing in scientific writing (within text, and end-of-text, citations and citation management software).

Week 10 (Oct 26 – Oct 30); Tutorial held to practise analyzing a research paper about invasive species and constructing a media release.

Due 5 pm, Friday Oct 30: The first draft media release about your critical issue paper.

Lecture 18– Invasive species: impact on biodiversity and on the environment.

Lecture 19– Mathematical models of invasive species and COVID-19.

Week 11 (Nov 2 – 6; Tutorial held to discuss preparation of a poster presentation; *Introduction to assignment – preparing a poster presentation about your critical issue*; Sign-up in tutorial for First Session (Nov 23-27) or Second Session (Nov 30- Dec 4)

Due 5 pm Nov 6: Peer reviews of media releases.

Lecture 20 - Primary and secondary scientific literature; Editorial process leading to a peer-reviewed (refereed) publication.

Lecture 21 – *Guest speaker(s)*: TBN members of the USURJ Editorial Staff – Original scholarly work created by students for publication within the University of Saskatchewan Undergraduate Research Journal (USURJ).

Week 12 (Nov 9 – 14) **University Study Break (No lectures or tutorials this week)**

Week 13 (Nov 16-20; No tutorial this week.

Due: 5 pm Nov 16. First Draft Poster about your critical issue paper.

Due: 5 pm Nov 20. Revised Media Release about your critical issue paper.

Due: 5 pm Nov 20. Peer reviews of critical issue posters.

Lecture 20 – Current issues in research ethics.

Lecture 21 – *Guest speaker*: Dr. Corinna Kashuba, University Veterinarian. *Animal Ethics in Research*

Week 14 (Nov 23 - 27; Tutorial held on Tue, Wed, and Thurs, for the First Session of Poster Presentations by half of each tutorial-section's students.

Lecture 24 – Writing a mini-review essay about a selected biological topic; *Introduction to assignment – preparing the essay about your critical issue* during the Final Exam period

Week 15 (Nov 30 – Dec 4; Tutorial held on Tue, Wed, and Thurs, for the Second Session of Poster Presentations by half of each tutorial-section's students.

Lecture 25– Overview of the second half of the course.

Midterm and Final Examination Scheduling

The midterm must be written on the date scheduled. If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given. Students are encouraged to review all examination policies and procedures:

<http://students.usask.ca/academics/exams.php>

Length and Mode of Final Examination

For this course, a final essay is due on Dec. 14 in lieu of a final exam. Details of this assigned essay will be shared in class.

Required Resources

Required Book:

Victoria McMillan. *Writing Papers in the Biological Sciences* (6th ed, published in 2017)

Textbooks are available from the University of Saskatchewan Bookstore:

<https://bookstore.usask.ca/students.php#MyTextbooks>

Other Required Materials

Electronic Resources

All lectures and some additional course material such as scientific papers, will be shared on the course Canvas website.

Grading Scheme

OVERALL EVALUATION (Total = 100%) – All components listed are required course work:

Part 1

- Protocol (Due date: Sept. 18) 7%
- Abstract (Due date: Oct. 2) 8%
- Scientific Certainty essay (Due date: Oct 16) 15%
- Midterm Exam (written in the class period on Oct 16) 20%

Part 2

- Tweet about critical issue paper (Due date: Oct 23) 2%
- First draft of media release about critical issue paper (Due date: Oct 30) 2%
- Peer review completion for media release (Due date: Nov 6) 3%
- Revised media release about critical issue paper (Due date: Nov 20) 4%
- First draft of poster about critical issue paper (Due date: Nov 16) 2%
- Peer review completion for poster (Due date: Nov 20) 3%
- Poster presentation about critical issue paper (Nov 23-27, Nov 30-Dec 4) 8%
- Essay/Mini review article about critical issue (Due date: Dec. 14) 26%

Evaluation Components

Assignment 1: Protocol

Value: 7% of final grade

Due Date: Sept 18, 2020

Type: Written assignment that emphasizes the ability to follow specific directions and clearly and concisely summary information. This assignment will help the course instructors identify any students that may require additional writing supports.

Description: Clear, concise writing is a critical skill for any scientists. You are to write a protocol, or a "how to" document, on an activity of your choice. The assignment will be 650-850 words and will follow specific formatting instructions.

Assignment 2: Abstract

Value: 8% of final grade

Due Date: October 2, 2020

Type: Written assignment that consists of an abstract for a scientific paper. Given that most scientists read hundreds of abstracts for each paper they read, learning to write abstracts is a critical skill for professional biologists.

Description: Students will write an abstract (250 words), along with a title and key words, of a scientific paper that is supplied by Professor Chivers. The style of the abstract must follow that outlined in class.

Assignment 3: Scientific Certainty Essay

Value: 15% of final grade

Due Date: October 16, 2020

Type: Written assignment in which you assess your certainty that a specific hypothesis presented to you is true.

Description: The scientific method allows scientist to draw conclusions yet when presented with the same data, individuals often differ in how certain they are that a conclusion is correct. In this 900-1200 words essay you will explore your certainty of a hypothesis being true and any differences in certainty that arises between you and members of the class.

Midterm Exam

Value: 20% of final grade

Date: Oct 16, 2020

Length: 3 hours

Type: Comprehensive exam for the first half of the course.

Description: Essay exam (1 question) that examines your understanding of the scientific method. The essay question will be emailed to you at the start of the lecture period on Oct 16th and must be emailed back to Professor Chivers by 4:30 that day. All students must work alone.

Assignment 4: Critical Issue Tweet

Value: 2% of final grade

Due Date: See Course Schedule

Type: Tweet in MS Document format, or other approved document. Tweets are an important tool for scientists and universities to share research results. They also require distillation of complex ideas into very short communications.

Description: Using a tweet generator compose and submit a (fake or real) tweet summarizing and promoting the results of your approved paper.

Assignment 5: First Draft of Media Release

Value: 2% of final grade

Due Date: See Course Schedule

Type: Media release document---MS Word format. Media releases are an important tool for scientists and universities to share research results. They also require distillation of complex ideas into short communications.

Description: Compose a media release for your approved paper. Must have all elements of a media release, as outlined during lecture and tutorial.

Assignment 6: Peer Reviews of Media Release

Value: 3% of final grade

Due Date: See Course Schedule

Type: Peer review of two media releases provided by instructor.

Description: Provide a constructive peer review of two media releases. Must comment on all elements of media release, as well as grammar and structure.

Assignment 6: Revised Media Release

Value: 4% of final grade

Due Date: See Course Schedule

Type: Media release document---MS Word format. Media releases are an important tool for scientists and universities to share research results. They also require distillation of complex ideas into short communications.

Description: Using feedback from peer reviews, revise your media release for your approved paper. Must have all elements of a media release, as outlined during lecture and tutorial.

Assignment 6: First Draft of Poster

Value: 2% of final grade

Due Date: See Course Schedule

Type: Digital poster document---MS PowerPoint format. Scientific Posters are an important tool for scientists to share research results. They also require distillation of complex ideas into short communications.

Description: Construct a scientific poster for your approved paper. Must have all elements of a scientific poster as outlined during lecture and tutorial.

Assignment 7: Peer Reviews of Poster

Value: 3% of final grade

Due Date: See Course Schedule

Type: Peer review of two scientific posters provided by instructor.

Description: Provide a constructive peer review of two posters. Must comment on all elements of posters, as well as grammar and design.

Assignment 8: Poster Presentation

Value: 8% of final grade

Due Date: See Course Schedule

Type: Oral presentation of digital poster document---MS PowerPoint format. Scientific Posters and their associated guided presentations are an important tool for scientists to share research results. They also require distillation of complex ideas into short communications.

Description: Using feedback from peer reviews, revise the scientific poster for your approved paper. Must have all elements of a scientific poster as outlined during lecture and tutorial. Then present your poster one-on-one in 4 minute synchronous online meeting. 50% marks will be given to poster design and content, 40% marks to the oral presentation of material where marks will be given for clarity, timeliness, scientific accuracy, and 10% marks for demonstrating clear understanding of material by answering questions.

Assignment 9: Critical Issue Essay

Value: 26% of final grade

Date: See Course Schedule

Type: Written essay in MS Word format showing the relevance of the current issue to biology and the world.

Description: 1200 word essay on your critical issue incorporating detailed analysis of the approved scientific paper and its placement in the scope of other literature associated with the critical issue. Use at least 4 total citations. Additional details and rubric will be shared in class.

Submitting Assignments

All assignments will be submitted through Canvas and will be due at the specific date and time indicated.

Late Assignments

All assignments are due by the on the day and time indicated in the syllabus. Late assignments (including those turned in after class on the same day) will be penalized 20 percent per day (including weekends). Extensions are only granted in extraordinary circumstances (notably as a result of family or medical emergencies) and upon receipt of adequate documentation. It is your responsibility to contact an instructor prior to the due date/exam if possible or as soon after the due date if it was unfeasible to do so before hand.

Attendance Expectations

Attendance is required for synchronous tutorial sessions. Each absence beyond the first tutorial session will result in 5% deduction from the overall course marks. Absences will be excused up to the instructors discretion.

Experiential Learning

There are no experiential learning portions of this course

Recommended Technology for Remote Learning

Course lectures and interactive features will be offered through Canvas.

Students are reminded of the importance of having the appropriate technology for remote learning. The list of recommendations can be found at <https://students.usask.ca/remote-learning/tech-requirements.php>.

Recording of the Course

Use of video and recording of the course:

Video conference sessions in this course, including your participation, will be recorded and made available only to students in the course for viewing via Canvas/Blackboard after each session. This is done, in part, to ensure that students unable to join the session (due to, for example, issues with their internet connection) can view the session at a later time. This will also provide you the opportunity to review any material discussed.

Please remember that course recordings belong to your instructor, the University, and/or others (like a guest lecturer) depending on the circumstance of each session, and are protected by copyright. Do not download, copy, or share recordings without the explicit permission of the instructor.

For questions about recording and use of sessions in which you have participated, including any concerns related to your privacy, please contact your instructor. More information on class recordings can be found in the Academic Courses Policy <https://policies.usask.ca/policies/academic-affairs/academic-courses.php#5ClassRecordings>.

Required video use:

At times in this course you will be required to have your video on during video conferencing sessions. It will be necessary for you to have use of a webcam built into or connected to your computer. For questions about use of video in your sessions, including those related to your privacy, contact your instructor.

Copyright

Course materials are provided to you based on your registration in a class, and anything created by your professors and instructors is their intellectual property, unless materials are designated as open education resources. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to you based on license terms and educational exceptions in the Canadian Copyright Act (see <http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>).

Before you copy or distribute others' copyright-protected materials, please ensure that your use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at <https://library.usask.ca/copyright/general-information/fair-dealing-guidelines.php>. For example, posting others' copyright-protected materials on the open web is not covered under the University's Fair Dealing Copyright Guidelines, and doing so requires permission from the copyright holder.

For more information about copyright, please visit <https://library.usask.ca/copyright/index.php> where there is information for students available at <https://library.usask.ca/copyright/students/rights.php>, or contact the University's Copyright Coordinator at <mailto:copyright.coordinator@usask.ca> or 306-966-8817.

Integrity in a Remote Learning Context

Although the face of teaching and learning has changed due to covid-19, the rules and principles governing academic integrity remain the same. If you ever have questions about what may or may not be permitted, ask your instructor. Students have found it especially important to clarify rules related to exams administered remotely and to follow these carefully and completely.

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <https://library.usask.ca/academic-integrity#AboutAcademicIntegrity>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial>

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <https://students.usask.ca/health/centres/access-equity-services.php>, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

For information on AES services and remote learning please visit <https://updates.usask.ca/info/current/accessibility.php#AccessandEquityServices>

Student Supports

Academic Help for Students

The University Library offers a range of learning and academic support to assist USask undergrad and graduate students. For information on specific services, please see the Learning page on the Library web site <https://library.usask.ca/support/learning.php>.

- Remote learning support information <https://students.usask.ca/study/remote-learning.php>
- Remote learning tutorial https://libguides.usask.ca/remote_learning
- Study skills materials for online learning <https://libguides.usask.ca/studyskills>
- A guide on netiquette, principles to guide respectful online learning interactions <https://teaching.usask.ca/remote-teaching/netiquette.php>

Teaching, Learning and Student Experience

Teaching, Learning and Student Experience (TLSE) provides developmental and support services and programs to students and the university community. For more information, see the students' web site <http://students.usask.ca>.

College Supports

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at: [\(http://artsandscience.usask.ca/undergraduate/advising/\)](http://artsandscience.usask.ca/undergraduate/advising/)

Financial Support

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact Student Central <https://students.usask.ca/student-central.php>.

Aboriginal Students' Centre

The Aboriginal Students' Centre (ASC) is dedicated to supporting Aboriginal student academic and personal success. The centre offers personal, social, cultural and some academic supports to Métis, First Nations, and Inuit students. The centre is also dedicated to intercultural education, bringing Aboriginal and non-Aboriginal students together to learn from, with and about one another in a respectful, inclusive and safe environment. Students are encouraged to visit the ASC's Facebook page [\(https://www.facebook.com/aboriginalstudentscentre/\)](https://www.facebook.com/aboriginalstudentscentre/) to learn more.

International Student and Study Abroad Centre

The International Student and Study Abroad Centre (ISSAC) supports student success and facilitates international education experiences at USask and abroad. ISSAC is here to assist all international undergraduate, graduate, exchange and English as a Second Language students in their transition to the University of Saskatchewan and to life in Canada. ISSAC offers advising and support on matters that affect international students and their families and on

matters related to studying abroad as University of Saskatchewan students. Please visit students.usask.ca or updates.usask.ca for more information.

Treaty Acknowledgement

As we engage in Remote Teaching and Learning, I would like to acknowledge that the Saskatoon campus of the University of Saskatchewan is on ***Treaty Six Territory*** and the ***Homeland of the Métis***. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another. I would also like to recognize that some may be attending this course from other traditional Indigenous lands. I ask that you take a moment to make your own Land Acknowledgement to the peoples of those lands. In doing so, we are actively participating in reconciliation as we navigate our time in this course, learning and supporting each other.