



Department of Biology and
Department of Statistical & Actuarial Sciences
Biology/Statistics 2244B – “Statistics for Science”
Course outline for Summer Distance 2024 (term 1245)

*Western University is committed to a **thriving campus**. We encourage you to check out the [Your Student Experience](https://www.uwo.ca/yourstudentexperience/) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>. Students who are in emotional/mental distress should refer to Mental Health@Western ([http://uwo.ca/health/](mailto:MentalHealth@Western)) for a complete list of options about how to obtain help.*

An introductory course in the application of statistical methods, intended for students in departments other than Statistical and Actuarial Sciences, Applied Mathematics, Mathematics, or students in the Faculty of Engineering. Topics include sampling, confidence intervals, analysis of variance, regression and correlation.

Classes Start	Add deadline	Drop Deadline*	Classes End	Exam Period
June 17	June 21	July 15	July 26	July 29-Aug 1

*Last day to withdraw from a 6-week second-term half course, resulting in a grade of WDN (withdrawn, without academic penalty).

Jennifer Peter (she/her)

Timing of **Student Hours with Jennifer** (drop-in times to get support and ask questions), and **Help Sessions with TAs** (to get clarification on assignments and troubleshooting with lab content) will be organized during the first week of the course. These sessions will always have an online-access option (e.g. Zoom).



This course is designed to **demonstrate that statistics is a scientific discipline that should inform research at all stages**, from problem definition through data interpretation and conclusion. Consequently, the course topics are organized around the PPDAC framework for scientific inquiry³, focusing on applying knowledge relevant to questions that researchers should consider at each stage of the research process. By the end of the course, therefore, a successful student will have demonstrated proficiency with a majority of the following learning outcomes:

³ Mackay, R.J., and R.W. Oldford. 2000. Scientific method, statistical method, and Scdiscipline that

These materials are “required” in that each student needs access to them to be successful in the course. In addition to these main resources, we will occasionally use freely available articles, videos, and applets to supplement your learning.

The OWL Brightspace site, **STATS 2244B 650: Statistics for Science** is used heavily; students are responsible for checking the site on a regular basis. It provides:

- Lecture and lab materials
- Assessment instructions and materials
- Practice questions
- Communication tools (Discussions, Announcements)
- Calendar of due dates and help sessions

The **Lab** component of the course requires using the statistical software program **R** and the integrated development environment, **R Studio**, to work with data and communicate. Both software packages are free to

There are TWO (2) criteria that must be met for a student to be *eligible* to earn a passing grade (i.e. 50% or more) in Biology/Statistics 2244. These are:

earning at least 20% for the Assignments component (achieved as described below), **AND**,
earning at least 40% on the Final Exam.

Failing to meet either and/or both of these two criteria will result in **a final course grade of 40%** (or your actual computed grade, whichever is lower) being assigned, regardless of your achievements on other components of the course.

The *Assignments*

WHY? The *Assignments* are created to assess your level of achievement on a core subset of course-learning outcomes (see **page 4** in this syllabus) in an authentic manner, including your use of the statistical software, R.

WHAT? There are three (3) *Assignments*, each composed of a couple short answer questions requiring written responses (possibly including graphs/tables and/or R code and output). The *Assignments* move progressively through the stages of the PPDAC framework⁴, and involve answering questions that relate to an overall research objective and set of related research questions. Each Assignment will address a subset of three (3) of the course-level learning outcomes; each learning outcome will be graded on a 4-level rubric, which will be provided in the *Assignment*

up *Midterm*

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

