Department of Biology
and
Department of Statistical and Actuarial Sciences

Biology/Statistics 2244A – "Statistics for Science"

Course outline for Fall 2021

Western University is committed to a **thriving campus**. We encourage you to check out the Digital Student Experience 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/.

Technical Requirements

Stable internet connection

Laptop or computer

Important Dates

Classes Start	Drop Deadline	Classes End	Exam Period
Sept 8	Nov 12	Dec 8	Dec 10-21

*Last day to drop a first-term half-course without academic penalty.

Course Information

Biology/Statistics 2244A, sections 001 and 002, FW21

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. Cannot be taken for credit in any module in Statistics, Actuarial Science, or Financial Modelling.

List of Prerequisite(s)

A full (1.0) mathematics course, or equivalent, numbered 1000 or above. Statistical Sciences 1024A/B can be used to meet 0.5 of the 1.0 mathematics course requirement.

List of Antirequisite(s)

All other courses in Introductory Statistics (except Statistical Sciences 1023A/B, Statistical Sciences 1024A/B): Economics 2122A/B, Economics 2222A/B, Geography 2210A/B, Health Sciences 3801A/B,MOS 2242A/B, Psychology 2810, Psychology 2820E, Psychology 2830A/B, Psychology 2850A/B, Psychology 2851A/B, Social Work 2207A/B, Sociology 2205A/B, Statistical Sciences 2035, Statistical Sciences 2141A/B, Statistical Sciences 2143A/B, Statistical Sciences 2858A/B, Statistical Sciences 2037A/B if taken prior to Fall 2010, former Psychology 2885 (Brescia), former Statistical Sciences 2122A/B, former Social Work 2205.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Instructor Information

Course Coordinator
Jennifer Peter

Contact Information
Use *OWL Messages* to
Jennifer Peter

My email address is too

using OWL Messages avoids lost/misdirected communications and helps me organize my inbox. It also ensures that you use your UWO contact information to connect with me.

Student Hoursures

Learning Outcomes

This course is meant to be both introductory and comprehensive, conceptual and practical. At a fundamental level, the course is organized to ***demonstrate that statistics is a scientific discipline that can and should inform research at all stages***, from problem definition to data interpretation and conclusion. To reinforce this over-archi
the PPDAC framework for scientific inquiry (MacKay and Oldford 2000).

More specifically, by the end of the course, a successful student should be able to:

Design sampling and study procedures to collect relevant data addressing a research question.	Distinguish among common sampling and study designs. Identify issues associated with sampling and study design (e.g. bias, validity, confounding) Identify relevant inference procedures based on research question and variables.
Create and interpret appropriate summaries of	Select summaries based on research question and variables. Interpret summaries to identify and/or describe patterns, trends, and interesting features in data.

Methods of Evaluation

This course uses a combination of more traditional grading schemes and ***Specifications Grading***; the information provided below should be sufficient to understand how your grade will be calculated. However, if at ANY time you are uncertain on how your grade is determined, or what is required to earn credit for the course, **ask for clarification.** I ed in learning more about here.

Overview

Your course grade is determined through a combination of the ***quality*** and ***quantity*** of the work you submit. Your grade is composed of two (2) components:

1. Your ***Base G*** of 40%, 50%, 60%, or 65%; the base grade is determined by the grades earned on *Assignments* and the *Activities* you successfully complete, as well as your success on the *Final Exam*. The Base Grade is an implementation of Specifications Grading.
2. Your ***Grade Increments*** which add additional percentage points onto your Base Grade using a more traditional grading approach, based on your success on:
   - the two *Tests* (15% total)
   - the *Final Exam* (10%)
   - the *Resource File Project* (10%)

Determine your Base Grade

ll in its entirety.

To earn:	Accomplish ALL of the following:
65	submit all four (4) *Assignments* earn a grade of at **least 95% and/or all rubric level 4s** on **each** of the four (4) *Assignments* earn credit for **all 3 Core** *Activities* earn credit for 1 *Activity* from **each** of the following *Activity* classes: (i) Summary, (ii) R practice, (iii) Application, (iv) Reflection earn credit for 3 additional *Activities* of your choice earn a grade of at **least 85%** on the *Final Exam* (see note * below)
60	submi ll four (4) *Assignments* Assign ent

*****Failing to meet the specified minimum grade for the *Final Exam* will result in a 5% deduction from the Base Grade (assuming all other requirements for the Base Grade are met). For example, a student working towards a Base Grade of 60% who does not earn at least 75% on the *Final Exam* will earn a Base Grade of 60% 5% = 55% (to which their Grade Increments will be added as normal).

Failing to meet the specifications for the 40 Base Grade will result in a *final course grade* of 45% being assigned, regardless of success on the Grade Increments. This means that the *minimum* that must be achieved to be eligible to earn credit (i.e. pass /50%) in Biology/Statistics 2244 is the specifications for the 40 Base Grade, plus sufficient percentage points earned through the Grade Increments and other Essential Requirements.

Determine your Grade Increments

Up to 35% could be added to the Base Grade earned, according to your achievement with the *Tests*, *Final Exam*, and *Resource File Project*.

Final Exam Increment. Any achievement on the *Final Exam* above the required minimum mark for your Base Grade can earn you up to an additional 10%. R

Assessment Descriptions

There are five (5)

to identify a suitable deadline. If the Assignment accommodation period extends beyond the point at which the graded Assignment is returned to the class, then an INC will be issued for the course. The missed Assignment will be completed the next time the course is offered.

When a group member for the *Resource File Project* has been granted a deadline extension, the Resource File (i.
the original deadline. Then, the accommodated stud
later, .

Accommodation for a *Test* will result in eligibility to write a make-up *Test*; the format of the make-up *Test* may be different from the original *Test*, while maintaining the same coverage and level of difficulty. Accommodation that covers the period of the make-up *Test* may result in a reweighting of other components of the course or some other accommodation determined as equivalent by the instructor.

Note that non-core *Activities* will not accommodated; a student with accommodation for a non-core Activity deadline can simply complete a different non-core *Activity* that is still available (i.e. with a deadline that has not yet passed). It behooves students to complete *Activities* throughout the term, rather than waiting until the last weeks in the course to submit *Activities*.

All *Assignment*, *Activity*, and *Resource File Project* deadlines have an automatic 12-h 'grace period'. That is, if you cannot make the original deadline set, you will have an additional 12-h period during which you can still submit the assessment **without** requiring any of the following: accommodation from Academic Counseling, the use of a Self-Reported Absence, or permission from the instructor. So, if you need that extra 12-hours to get these Assessments submitted, simply take it no questions asked. Beyond that 12-h grace period, late Activities *without* accommodation will not be accepted. Late Assignments or Resource File Projects will be accepted with a late penalty of at least 10% and/or 1 rubric level per 24-hour period (or part thereof). Missed assessments will not be accommodated except as described above. Note that the 12-h grace period does NOT apply to the *Tests* or the *Final Exam*.

Click here for a detailed and comprehensive set of policies and regulations concerning examinations and grading.

Rounding of Marks Statement

Across the Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. ***Final grades*** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark (politely) denied.

Accommodation and Accessibility

Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:
https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf

Academic Consideration for Student Absence

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

(i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:

Support Services

Please visit the Science Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.