

## STAT 3093, Winter 2021 Course Syllabus

### Instructor

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If you have questions about an assignment or reading, or need clarification or have a general question, please feel free to use the Chat function in our Teams class.

Alternatively, please feel free to email me at [gyan@unb.ca](mailto:gyan@unb.ca). When you send me an email, please add “STAT 3093” in the subject; otherwise there is a chance your email be filtered to spam.

### Live sessions on Teams

We will have live classes 10:30-11:20pm, MWF on Teams. Please join me following this link.

<https://teams.microsoft.com/l/meetup-join/19%3ad29a7ad1664c41b69c464216b180950d%40thread.tacv2/1608514568622?context=%7b%22id%22%3a%22244e6ed2-339a-47f3-b95c-e45351c198b7%22%2c%22Oid%22%3a%22f6f4a175-2e70-4fdb-a022-6d2d6a155d65%22%7d>

Please note that this is a general, open session. If you wish to have a one-on-one meeting, please email me and we can arrange a time for that.

### Course description

The second half of a two-part sequence covering various topics in probability and statistics. This course provides an introduction to essential techniques of statistical inference. Samples and statistics versus populations and parameters. Brief introduction to method of moments and maximum likelihood. Tests and intervals for means, variances and proportions (one and two-sample). Multiple regression, residual plots. Analysis of variance, brief introduction to experimental design. Chi-squared tests. Examples drawn from engineering, science, computing science and business. Use of a statistical computer package.

### Prerequisite

STAT 3083 or a grade of B+ or higher in STAT 2593.

### Textbook

Modern Mathematical Statistics with Applications, Second Edition, by Jay L. Devore and Kenneth N. Berk, Springer, 2012.

## Online materials

All of course materials, including class slides, video clips, assignments, exams and solutions, can be found in D2L Brightspace, UNB's online Learning Management System. You can access it through the MyUNB portal for single login to all UNB services (<https://my.unb.ca/Pages/default.aspx>) or directly at <https://lms.unb.ca/>.

D2L Brightspace Support for Students:  
<https://www.unb.ca/fredericton/cet/tls/educational/d2l/student-resources.html>

For D2L technical support, contact: [d2l@unb.ca](mailto:d2l@unb.ca)

## Marking

|   |     |
|---|-----|
| Assignments (best n-1 out of n marked): | 30% |
| Midterm (Wednesday, February 24th):     | 25% |
| Final Exam:                             | 45% |

We will use CrowdMark for submission of assignments and exams. Information about using CrowdMark is here:

[https://www.unbtl.ca/itl/pdfs/Crowdmark\\_Student\\_QuickStart\\_Guide.pdf](https://www.unbtl.ca/itl/pdfs/Crowdmark_Student_QuickStart_Guide.pdf)

**Assignments** will be sent to your email from CrowdMark and will also be posted on D2L on Fridays. The first one will be sent out on January 15<sup>th</sup>. The assignments will typically be due one week after being assigned. If grading resources are limited, then only parts of the assignments may be graded. The lowest assignment will be dropped. **Late assignments will not be graded.**

The scope of the **midterm** will be given in advance. **No make-up midterm will be given.**

The **final** will be 3-hour in duration which will cover the entire course, including some material covered in the midterm.

Please ask questions about the midterm and the final exams use the Chat function in our Teams class. This way everyone will get the same information.

## Catastrophe

In case a catastrophe has prevented you from attending an exam or turning in assignments, then accommodations will be made.

## Tentative course outline

Chapter 1: Descriptive statistics  
Chapter 6: Sample distributions  
Chapter 7: Point estimation  
Chapter 8: Interval estimation based on a single sample  
Chapter 9: Tests of hypothesis based on a single sample  
Chapter 10: Two-sample inferences  
Chapter 11: Analysis of variance  
Chapter 12: Regression and correlation  
Chapter 13: Chi-square tests

### Important dates

- January 22, Friday: Last day for adding Winter term courses. Winter term courses dropped up to and including this date not shown on the academic transcript.
- February 15, Monday: NB Family Day -- University Holiday – no class.
- February 23, Tuesday: Last day to withdraw from Winter term courses with pro-rated refund.
- February 24, Wednesday: **Midterm.**
- March 1-5, Monday-Friday: Winter Term break – no classes.
- March 15, Monday: Last day to withdraw from Winter term courses without academic penalty (no refund). A grade of “W” (withdrawn) will be shown on the academic record.
- April 2-5, Friday, Monday: Easter – University Holiday – no classes.
- April 15, Thursday: Last day of Winter Term classes.

### Statistical package

The official course software is R. After you have installed R, you may find that a program called RStudio can make some things a bit easier to do.

R and RStudio are both freeware. They can be downloaded via these links:

<https://cran.r-project.org>

<https://www.rstudio.com/products/rstudio/download>

Note: ITS and the computer help desk will NOT help you with learning to use R or RStudio. You need to get that help from me or from the Math Learning Centre.

### UNB grading scale

| Letter Grade | Grade Points |
|--------------|--------------|
| A+           | 4.3          |

|    |     |              |
|----|-----|--------------|
| A  | 4.0 | Excellent    |
| A- | 3.7 |              |
| B+ | 3.3 |              |
| B  | 3.0 | Good         |
| B- | 2.7 |              |
| C+ | 2.3 |              |
| C  | 2.0 | Satisfactory |
| D  | 1.0 |              |
| F  | 0.0 |              |

### **General technical support**

For general technical support, please contact Information Technology Services (ITS) Help Desk by phone, 457-2222 or email, [itservicedesk@unb.ca](mailto:itservicedesk@unb.ca).

### **Math skills support**

UNB's Math Learning Centre offers math help drop-in times and opportunity to book appointments: <http://www.math.unb.ca/~mathhelp/>.

### **Academic advising**

For academic advising information and assistance, see: [go.unb.ca/advising-fr](http://go.unb.ca/advising-fr)

### **Services for students with disabilities**

If you are a student with a disability of any type (physical, mental, learning, medical, chronic health, sensory; visible or invisible) you are strongly encouraged to register with the UNBF Student Accessibility Centre (SAC) (<http://www.unb.ca/fredericton/studentservices/academics/accessibility/>) so that you may receive appropriate services and accommodations.

### **Class recording and copyright**

Anyone who wishes to video or audio record lecture presentations, or distribute course notes or other similar materials provided by instructors must obtain the instructor's written consent beforehand. Otherwise all such reproduction is an infringement of copyright and is absolutely prohibited and subject to academic penalties (see Academic Offences below). In the case of private use by students with documented disabilities, the instructor's consent will not be unreasonably withheld.

### **Privacy statement for online Course recordings**

- The recordings of your online classes are for your personal use for course purposes only and not to be shared with others.
- Be respectful of your peers and instructors. Sharing of any personal information, including but not limited to personal views and opinions with others, other than for course purposes, is not permitted and may violate UNB's Policy for the Protection of Personal Information and Privacy.
- Personal opinions, views, and commentary provided in the course of online delivery may be considered personal information, which requires the consent of the person who provided it in order to share it ethically and legally. Course videos are to be used only to help you learn the course material.

The content shared by faculty and instructors is subject to copyright and cannot be shared without the explicit permission of the copyright owner, which may include but not be limited to the course instructor, their colleagues, textbook publishers, and multimedia vendors.

### **Plagiarism and academic offences**

The university has carefully defined what it considers plagiarism, and these regulations are found in the UNB calendar section B.19 IX Academic Offences:

Plagiarism includes:

1. quoting verbatim or almost verbatim from any source, regardless of format, without acknowledgement;
2. adopting someone else's line of thought, argument, arrangement, or supporting evidence (such as, statistics, bibliographies, etc.) without indicating such dependence;
3. submitting someone else's work, in whatever form (essay, film, workbook, artwork, computer materials, etc.) without acknowledgement;
4. knowingly representing as one's own work any idea of another.

**NOTE:** In courses which include group work, a penalty may be imposed on all members of the group unless an act of plagiarism is identified clearly with an individual student or students.

Please note that plagiarism is not difficult to spot; web sources can be quickly traced through a variety of specialty search engines. Professors are required to follow the disciplinary procedures outlined in the calendar (B.17. IX. A. 1-2).

Other academic offences you need to be aware of include:

1. Cheating on examination, tests, assignments or reports, including but not limited to:  
Impersonating a candidate at an examination or test or in connection with any assignment in a course or availing oneself of the results of impersonation.  
Obtaining, through theft, bribery, collusion, purchase, or other improper manner,
  1. an examination or test paper prior to the date and time for writing the examination or test;
  2. academic materials belonging to another person, e.g. laboratory reports, assignments, papers, computer materials, datasets.
2. Falsifying or knowingly submitting false assignments or credentials, records, transcripts, or other academic documents.
3. Submitting a false health or other certificate.
4. Submitting identical or substantially similar work for one course or program of study, which has been or is being submitted for another course or program of study, without the prior express knowledge and approval of the instructors.
5. Interfering with the right of other students to pursue their studies.
6. Knowingly aiding or abetting any of the above offences.
7. Tampering with, or altering, in any deceptive way, work subsequently presented for a review of the grade awarded.

Penalties for plagiarism and other academic offences range from a minimum of F (zero) in the assignment, exam or test to a maximum of suspension or expulsion from the University, plus a notation of the academic offence on the student's transcript.

For more information, please see the Undergraduate Calendar, University Wide Academic Regulations, Regulation VIII.A, or visit: <http://go.unb.ca/tlsPb0XX5>. It is the student's responsibility to know the regulations.