Course ID:	Course Title:	Winter 2023
BHS 310	Quantitative Methods for Behavioural Science	Prerequisite: BHS 240
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	In Class	Instructor:	Rodrigo Dal Ben, Ph.D.	First Day of Classes:	Jan 09
Days:	Tuesday & Thursday	Email:	rod.dalben@ambrose.edu	Last Day to Add/Drop:	Jan 22
Time:	1:00 – 2:15 pm	Phone:	6928	Last Day to Withdraw:	March 31
Room:	A1085-1	Office:	L2107	Last Day to Apply for Extension:	April 03
Lab/ Tutorial:	Mondays, 1:00 – 3:00 pm A1085-1	Office Hours:	Tuesday & Thursday* (in-person or online)	Last Day of Classes:	April 14
Final Exam:	NA				

Important Dates and Information

- Dates: for a list of all important dates and information regarding participating in classes at Ambrose University, please refer to the Academic Calendar at https://ambrose.edu/academic-calendar
- *Office hours: Please schedule a time slot on https://calendly.com/rod_dalben/office-hours-winter
- Email: I check my inbox 1-2 times per day. I do respond all email, but it can take up to 72 hours due to the volume of messages. Email messages are a professional form of communication, please be polite when emailing. Inappropriate messages will be ignored.
- Communications: Most communications will go through Moodle, under "announcements." Remember to set up your Moodle account so it distributes announcements to your email address.
- Syllabus: keep a copy of this document throughout the course and **use it as a reference guide**. If you ask me for information that is already here, I will probably redirect you to this document.
- Studying group: The instructor will host a weekly studying group at the Library, Study Room TDB. While all students are invited, participation is NOT required or graded in anyway. The group aims to develop fellowship and time management skills. It will happen every Monday from 3pm to 4pm, unless otherwise noted.

Course Description

This course is designed to give students a basic understanding of descriptive and inferential statistics. Emphasis is placed on practical application and students will learn to analyze and interpret basic statistical research. They will also learn to use computer software. Lecture and laboratory components will be involved.

Expected Learning Outcomes
1. Demonstrate understanding of the scientific method
2. Demonstrate knowledge of univariate analytical approaches
3. Demonstrate the ability to evaluate and present primary research, with focus on quantitative data analyses
4. Demonstrate the ability to apply quantitative data analyses to "everyday life"
5. Demonstrate the ability to use statistical software to analyze quantitative data
6. Demonstrate the ability to articulate oneself in written format
7. Demonstrate the ability to provide feedback to peers
8. Demonstrate the ability to work in teams
9. Demonstrate the ability to self-evaluate one's own work
10. Demonstrate respect and understanding of human unity and diversity, both individual and social.

Textbooks
Required
Navarro, D.J., Foxcroft, D.R., & Faulkenberry, T.J. (2019). Learning Statistics with JASP: A Tutorial for Psychology Students and Other Beginners. (Version 0.70). [Available on Moodle]

Field, A., (2018). *Discovering statistics using IBM SPSS statistics* (5th Ed., North American Edition). Thousand Oaks, CA: Sage Publications Inc. [Available on Moodle] *Obs. Also used in BHS410*

Goss-Sampson (2020). Statistical analysis in JASP: A guide for students. 10.6084/m9.figshare.9980744 [Available on Moodle]

Software & Resources
For this course, we will use JASP (https://jasp-stats.org/) for labs and assignments. JASP is a free and open-source statistical software based on R language for statistical computing. It is a great alternative to proprietary software (e.g., SPSS). Several open data resources will be used during the course. Whenever relevant, resources will be available on Moodle (either file or link for download).

Delivery mode
This course follows an active learning approach. Students will constantly engage with course materials, peers, and instructor to learn, understand, apply, analyze, and evaluate psychological ideas. At the same time, students will receive constant feedback from the instructor and their peers. Students should expect a blend of lecture-based classes, constant in-class activities, seminars, and labs. In the Requirements section, the main assignments are described, but keep in mind that most in-class activities will be tailored to students' learning trajectories and cannot be fully anticipated.

Course Schedule

Week	Day	Topic	Readings & # of pages	Delivery Mode	Assignments & deadlines
1	Jan 9	Meet and greet, Syllabus, Moodle	NA	Fully active	NA
	Jan 10	Dates: seminars and assignments	Syllabus (Moodle)	Fully Active	- Seminar: define groups. - Seminar: select articles.
	Jan 12	Warming-up: getting up to speed with tickets to class and seminars			
2	Jan 16	Lab: JASP overview	Navarro – Ch 03 Goss-Sampson – Pages 2 to 13	Fully active	Software installation & Introduction – **Bring your computer**
	Jan 17	Why statistics?	Navarro – Ch 01 & 02 Field – Ch 01	Lecture	- Ticket to class: **January 13, 5:00 PM**
	Jan 19			Lecture	
3	Jan 23	Lab: Descriptive	Navarro – Ch 04 Goss-Sampson – Pages 14 to 23	Lab 01	- Lab assignment 01: **Submitted and graded during lab time**
	Jan 24	Probability	Navarro – Ch 06	Lecture	- Ticket to class: **January 20, 5:00 PM**
	Jan 26	PROGRAM DAY – NO CLASS			
4	Jan 30	Lab: Visualizations	Navarro – Ch 05 Optional: Field – Ch 05	Lab 02	- Lab assignment 02: **Submitted and graded during lab time**
	Jan 31	Estimation (SPINE)	Navarro – Ch 07 Field – Ch 02	Lecture	- Ticket to class: **January 27, 5:00 PM**
	Feb 02			Lecture	
5	Feb 06	Mid-way checkpoint: Feedback			
	Feb 07	Statistical frameworks	Navarro – Ch 08 Field – Ch 03	Lecture	- Ticket to class: **February 03, 5:00 PM**
	Feb 09			Lecture	
6	Feb 13	Lab: Data integrity	Goss-Sampson – Pages 25 to 39	Lab 03	- Lab assignment 03: **Submitted and graded during lab time**
	Feb 14	Assumptions and bias	Field – Ch 06	Lecture	- Ticket to class: **February 10, 5:00 PM**
	Feb 16			Lecture	
7	Feb 20	READING WEEK – NO CLASSES OR ASSIGNMENTS			
	Feb 21				
	Feb 23				
8	Feb 27	Warming-up: getting up to speed with tickets to class and seminars			
	Feb 28	Categorical data analysis	Navarro – Ch 09	Lecture	**MONDAY:** - Ticket to class: **February 27, 5:00 PM** - Seminar – submit pre-presentation docs – Group 01: **February 28, 5:00 PM**
	Mar 02		Selected article (Moodle)	Seminar 01	- Seminar Presentation – Group 01: **March 02**
9	Mar 06	Lab: Chi-square	Goss-Sampson – Pages 43 to 49	Lab 04	- Lab assignment 04: **Submitted and graded during lab time**
	Mar 07	Comparing two means	Navarro – Ch 10 *Optional:* Field – Ch 10 (Except: 10.8 and 10.9)	Lecture	- Ticket to class: **March 03, 5:00 PM** - Seminar – submit pre-presentation docs – Group 02: **March 07, 5:00 PM**
	Mar 09		Selected article (Moodle)	Seminar 02	- Seminar Presentation – Group 02: **March 09**
10	Mar 13	Lab: *t*-test	Goss-Sampson – Pages 40 to 43; 50 to 60	Lab 05	- Lab assignment 05: **Submitted and graded during lab time**

	Mar 14	Correlation	Navarro – Ch 11, pages 251 to 261 *Optional:* Field – Ch 08 (Except: 8.4.1, 8.4.2, 8.5.3, 8.6.3)	Lecture	- Ticket to class: **March 10, 5:00 PM** - Seminar – submit pre-presentation docs – Group 03: **March 14, 5:00 PM**
	Mar 16		Selected article (Moodle)	Seminar 03	- Seminar Presentation – Group 03: **March 16**
11	Mar 20	Lab: Correlation	Goss-Sampson – Pages 61 to 66	Lab 06	- Lab assignment 06: **Submitted and graded during lab time**
	Mar 21	Linear model & Regression	Navarro – Ch 11, pages 262 to 292 Field – Ch 9 (Except: 9.7, 9.10)	Lecture	- Ticket to class: **March 17, 5:00 PM**
	Mar 23			Lecture	
12	Mar 27	Lab: Regression	Goss-Sampson – Pages 61 to 66	Lab 07	- Lab assignment 07: **Submitted and graded during lab time**
	Mar 28	Linear model & Regression	Selected article (Moodle)	Seminar 04	- Ticket to class: **March 24, 5:00 PM** - Seminar – submit pre-presentation docs – Group 04: **March 27, 5:00 PM** - Seminar Presentation – Group 04: **March 28**
	Mar 30		Selected article (Moodle)	Seminar 05	- Seminar – submit pre-presentation docs – Group 05: **March 28, 5:00 PM** - Seminar Presentation – Group 05: **March 30**
13	Apr 03	Lab: Regression	NA	Lab 08	- Lab assignment 08: **Submitted and graded during lab time**
	Apr 04	Comparing several means	Navarro – Ch 12 *Optional:* Field – Ch 12	Lecture	- Ticket to class: **March 31, 5:00 PM** - Seminar – submit pre-presentation docs – Group 06: **April 04, 5:00 PM**
	Apr 06		Selected article (Moodle)	Seminar 06	- Seminar Presentation – Group 06: **April 06**
14	Apr 10	NO LAB – EASTER MONDAY			
	Apr 11	Next steps in quantitative analyses	Selected article (Moodle)	Lecture	- Ticket to class: **April 07, 5:00 PM**
	Apr 13	**Crossing line: Feedback & wrap-up**			

Please note that changes to the course schedule may occur in response to student questions and conversations.

Requirements

Assignment	Grade (%)	Learning outcomes
Ticket to class	20%	1, 2, 3, 6, 9, 10
Peer-feedback	10%	6, 7, 10
Seminar	25%	1, 2, 3, 6, 8, 10
In-class participation	15%	1, 2, 4, 6, 10
Labs	30%	1, 2, 4, 5, 6, 8, 9, 10

Notes:
1. **Academic integrity** is expected on ALL assignments.
2. Students **will not** be reminded about any assignment because:
   a. It is the students' obligation to know the course schedule and refer to this syllabus as needed.

b. It is the students' obligation to be up to date with the course material.
c. It is the students' obligation to be in class so that they know what topics are being discussed.
d. It is the students' obligation to anticipate when the reading will be covered in class.

3. **Aside from a note from a qualified professional, there will be no makeup or deadline extension for any missed assignment.**
4. **Readings:** Students are responsible for being up to date with assigned readings. Be prepared for reading and studying an estimated 900 pages over the course (between textbook and research articles).
5. **Studying group:** Time management is one of the most important skills to succeed in higher education and later in the workplace. While not a requirement, students are encouraged to take part in the weekly study groups.

Ticket to class: Tickets to class are required for all classes, both lectures-based and seminars, but requirements are slightly different for each class. All tickets to class must be submitted on Moodle in the week prior to the classes, following dates on the **Course Schedule. Late submissions will not be accepted.** Grading will be based on **completion**, which will be assessed by the instructor.

1. In the week prior to each lecture-based class, students must:
   a. Read the assigned readings.
   b. Answer a series of questions (quiz) on the main concepts or applications presented in the required readings.
      OR
   c. Submit a written summary, up to 600 words, of the assigned readings. The summary should reflect the students' preparation to the class. Students are free to choose their reporting style and formatting (e.g., some students might be comfortable with bullet points, others with narrative text). Regardless of style or formatting, the summary should be well written, logically organized, and present the main concepts and applications of the assigned readings as well as any personal insights that occurred when studying the material. Anonymized summaries will be used during in-class activities. The instructor will provide random feedback on summaries—do not expect feedback for every summary.
   d. Estimate how much effort was put into the week's assignments.

   Note. The instructor will decide whether to ask for a summary or a quiz.

2. In the week prior to each seminar, **students that are not leading the seminar** must:
   a. Read selected article—see Seminar for details on selection.
   b. Submit **one** question about the article. Any question is welcomed if it reflects an honest and careful consideration of the assigned readings (e.g., clarification, application, evaluation).

   Note. Students leading the seminar are not required to submit tickets for the seminar that they are leading.

Peer-feedback: During the final minutes of each class, students must log into Moodle and use the feedback forms to provide feedback on lecture-based classes and seminars. For lecture-based classes, students will provide feedback on the lecture content and in-class activities (i.e., clarity, media, accessibility, connection with assigned readings, motivation). For seminars, students will provide feedback on seminar content and organization (i.e., clarity, media, accessibility, connection with assigned readings, motivation). All feedback will be submitted on Moodle, anonymous, and grading will be based on completion. Feedback must be submitted in class.

Seminar: Seminars will be conducted entirely by students. In the first weeks of class, each student will rank seminars' topics according to preference. Students with similar interests will be grouped together, up to a max. number of members (to be determined depending on enrollment). If a particular topic is too popular, with more students interested in it than the maximum number of members, the members will be chosen randomly by the instructor. Once groups and topics are set, groups will be responsible for tasks prior to the seminar date and on the seminar date, see list following. All tasks **must be completed following the Course Schedule deadlines and be submitted on Moodle when applicable**.

1. Prior to the seminar date—all tasks must be performed on Moodle:
    a. Select an article from a pool of pre-approved articles.
    b. Inform class about the selection.
    c. Submit **one PDF file per group** on Moodle containing the following:
        i. A written summary, up to 1,500 words, of the article. The summary should be well written, logically organized, and present the main concepts, research questions, methods, findings, and applications presented in the article, as well as any personal insights that occurred when studying the article. The use of APA 7th ed formatting style **is mandatory**. Please, refer to the concise guide, see also this, and this reference guide.
        ii. A list of **up to 10** peer-questions selected based on their relevance to the topic and potential to generate productive discussions.
        iii. A list clearly describing the contributions of each group member to the seminar on the following areas:
            1. Selecting article (contributed or not).
            2. Reading and discussion of selected article (contributed or not).
            3. Writing and revising the summary (contributed or not).
            4. Reviewed and discussed peer-questions (contributed or not).

2. On the seminar date:
    a. Present the article's main concepts, research questions, methods, findings, as well as any insights from studying and preparing for the seminar. Media use (e.g., slides, videos) are encouraged, but not required. All group members should present. The presentation may take between 20 and 40 minutes.
    b. Share the ranking of peer-questions with the class.
    c. Mediate the discussion based on the questions, promoting respectful and constructive debate.

Grading. For tasks prior to the seminar date, grading will be based on on-time completion for tasks (1.a), (1.b), (1.d), and (1.e). Task (1.c) will be graded by the instructor based on the VALUE standard rubric for written communication (available on Moodle). For any task (1: a, b, c, d) submitted after the deadline, 5% of the seminar grade will be discounted for each day of delay, up to 50% of the grade. The oral presentation (2.a) on the seminar date will be assessed by the instructor based on the VALUE standard rubric for oral communication (available on Moodle) and peer-evaluation (feedback on Moodle). Tasks (2.b) and (2.c) will be based on completion. Failure to deliver any task on the seminar date will result in a discount of 50% of the seminar grade.

In-class participation: Students are expected to actively participate in all in-class activities. Such activities include, but are not limited to, discussions, group work, peer-feedback, asking and answering questions (by the instructor and peers) etc.

Grading will be based on attendance and active participation and will be assessed by the instructor based on the [VALUE standard rubric for critical thinking](available on Moodle).

Lab Assignments: During lab meetings, students will work with statistical software and open data to solve statistical problems. The instructor will provide initial instructions and supervise students during labs, providing, when necessary, additional instructions and feedback. Assignments, with all relevant files, must be submitted on Moodle **by each student**, even when students work in groups. Assignments will be graded based on correct answers to guiding questions for each worked problem. Assignments are due up to 2:30 pm, **late submissions will not be accepted. Grading will be done by both the instructor and the students during the final 30 minutes of each lab meeting, following a rubric provided by the instructor**. Students will grade their own work OR the work of their peers. Grading will be based on: (1) accuracy on objective answers and (2) demonstrated understanding of statistical concepts through written reports, which will be assessed by the instructor based on a rubric for each assignment (available on Moodle after each lab completion).

Attendance

In the Social Science Department we believe that learning is an active and interactive process, a joint venture between student and teacher and between student and student (i.e., learning is not just "downloading" information from teacher to student). Therefore, it is expected that professors will come to each class well-read and prepared to engage students on the topic at hand, giving students the utmost attention and respect. In turn, it is expected that students will take an active role in the learning process. This includes: (a) regular class attendance, (b) reading course material in advance of class, (c) showing up to class on time, and (d) attentively and proactively being "present" at class (i.e., not on the internet, not texting, not conversing with the person beside you). Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian ethos of excellence and respect that lies at the heart of the Ambrose educational experience.

Grade Summary

Percentage	Grade	Interpretation	Grade Points
96-100	A+	Excellent	4.00
91-95	A		4.00
86-90	A-		3.70
82-85	B+	Good	3.30
75-81	B		3.00
72-74	B-		2.70
68-71	C+	Satisfactory	2.30
63-67	C		2.00
60-62	C-		1.70
56-59	D+	Poor	1.30
50-55	D	Minimal Pass	1.0
0-49	F	Failure	0.00
-	P	Pass	No grade points

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g., percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.
Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Ambrose University Important Information:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions.

Exam Scheduling

Students who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the Academic Calendar. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Standards of Behaviour in the Classroom Setting

Learning is an active and interactive process, a joint venture between student and instructor and between student and student. Some topics covered within a class may lead to strong reactions and opinions. It is important that Students understand that they are entitled to hold contradictory beliefs and that they should be encouraged to engage with these topics in a critical manner. Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian imperative to pursue truth, which lies at the heart of the Ambrose educational experience. However, active discussion of controversial topics will be undertaken with respect and empathy, which are the foundations of civil discourse in the Classroom Setting. Primary responsibility for managing the classroom rests with the instructor. The instructor may direct a student to leave the class if the student engages in any behaviour that disrupts the classroom setting. If necessary, Ambrose security will be contacted to escort the student from class. Please refer to your professor regarding their electronic etiquette expectations.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. The academic calendar can be found at https://ambrose.edu/content/academic-calendar-2.

Privacy

Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Coursework Extensions

Should a request for a time extension on coursework exceed the end of the term, a *Coursework Extension Application* must be completed and submitted to the Office of the Registrar. The extension (if granted) will be recorded on the student record. Extensions are granted at the discretion of the instructor and are normally granted for 30 days beyond the last day of the term.

Normally, Course Extension Applications will be considered only when all of the following conditions are met:

- the quality of prior course work has been satisfactory;
- circumstances beyond your control, such as an extended illness or death of a family member, make it impossible for you to complete the course work on time; and
- you submit *Coursework Extension Application* to the Office of the Registrar on or before the deadline specified in the Academic Schedule.

If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course.

A temporary grade of TX will be assigned until a final grade is submitted in accordance with the new deadline. A final grade of F will apply to:

- all course work submitted after the end of the semester unless a coursework extension has been granted; and all course work submitted after the revised due date provided by an approved extension to coursework.

Academic Success and Supports

Accessibility Services

Academic accommodation is provided to Ambrose students with disabilities in accordance with the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms. Provision of academic accommodation does not lower the academic standards of the university nor remove the need for evaluation and the need to meet essential learning outcomes. Reasonable accommodations are tailored to the individual student, are flexible, and are determined by considering the barriers within the unique environment of a

postsecondary institution. It can take time to organize academic accommodations and funding for disability-related services. Students with a disability who wish to have an academic accommodation are encouraged to contact Accessibility Services as early as possible to ensure appropriate planning for any needs that may include accommodations. Staff can then meet with students to determine areas to facilitate success, and if accommodations are required, ensure those accommodations are put in place by working with faculty.

Ambrose Writing Services
Ambrose Writing services provides academic support in the four foundational literacy skills—listening, speaking, reading, and writing. It also assists students with critical thinking and the research process. Throughout the academic year, students can meet with a writing tutor for personalized support, or they can attend a variety of workshops offered by Academic Success. These services are free to students enrolled at Ambrose University. Academic Success serves all students in all disciplines and at all levels, from history to biology and from theatre to theology. To learn more, please visit https://ambrose.edu/writingcentre

Ambrose Tutoring Services
Ambrose Tutoring Services provides support in specific disciplinary knowledge, especially in high-demand areas such as chemistry, philosophy, math and statistics, and religious studies. These tutors also coach students in general study skills, including listening and note-taking. During the academic year, Ambrose Tutoring Services offers drop-in tutoring for courses with high demand; for other courses, students can book a one-to-one appointment with a tutor in their discipline. These services are free to students enrolled at Ambrose University. To learn more, please visit https://ambrose.edu/tutoring.

Mental Health Support
All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:
- Counselling Services: ambrose.edu/counselling
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See ambrose.edu/crisissupport for a list of staff members.

Off Campus:
- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support
All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:
- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

Note: Students are strongly advised to retain this syllabus for their records.