

Course ID:	Course Title:	Fall 2021
BHS 410	Basic Multivariate Statistics	Prerequisites: BHS 240 BHS 310
		Credits: 3

Class Information		Instructor Information	
Delivery:	Virtual (zoom sessions)	Instructor:	Maede Ejaredar, PhD
Days:	Monday	Email:	Maede.Ejaredar@ambrose.edu
Class:	8:00am - 11:00am	Lab:	11:30am - 1:00pm
Room:	https://ucalgary.zoom.us/j/93392869997 Meeting ID: 933 9286 9997 Passcode: 233802	Office Hours:	By Appointment, virtual
Final Project:	<i>Take Home (December 11th to 13th)</i>	Add/Drop Deadline:	Midnight on September 19

Course Description

Multivariate analysis as applied to behavioural science. Correlation, simple and multiple regression, discriminant function analysis, canonical correlation, factor analysis, theories and applications of behavioural measurement, reliability, and validity will be presented. Lecture and laboratory components.

Expected Learning Outcomes

Through classes and directed readings, students will:

1. Gain a general understanding of univariate and multivariate analytical approaches.
2. Identify factors that bolster and undermine the validity and reliability of employing multivariate analyses.
3. Develop a rationale for when and how to incorporate multivariate techniques into research methods.
4. Examine statistical theory and thought that underpins the field of applied statistics.
5. Have facility with current technology in the field of behavioural science (e.g., electronic databases, computer analysis software such as IBM SPSS).

Textbooks

Howell, David C. (2017). Fundamental Statistics for the Behavioral Sciences, 9th Edition.

Required Software

Student will be expected to purchase **IBM® SPSS® Statistics Standard GradPack 27** and install it on their personal device. Notable discounts can be found at e-stores like OnTheHub and students are encouraged to purchase either the 6-month or 12-month rental licence.

Course Schedule

Week	Date	Topic
1	September 13	Descriptive Statistics
2	September 20	Hypothesis Testing
3	September 27	Introduction to Measurement
4	October 4	Issues of Reliability in Measurement
5	October 11	Thanksgiving (No Class/Tutorial)
6	October 18	Issues of Validity in Measurement
7	October 25	Correlation
8	November 1	Regression
9	November 8	Reading Week (No Class/Tutorial)
10	November 15	Measures of Difference & t-Test
11	November 22	ANOVA
12	November 29	Multivariate ANOVA
13	December 6	Research appraisal
14	December 13	Final project due

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

Learning Tasks and Assessment:

There are three required Learning Tasks for this course.

Learning Task	Description of Task	Percentage of Grade	Due Date
Assignment 1	Take home assignment	30%	October 4
Assignment 2	Take home assignment	30%	November 1
Final project	Statistical appraisal of a research paper	40%	December 11 to 13

Important Note. Percentage scores will be given for each course assignment. The weighting of each will be calculated and summed to provide the final letter grade. The completion of all assigned tasks is required for a passing grade in this course. All the assignments are due by 11:59pm of the assigned date.

Late Bank. A 3-day late bank will be provided to all students, and they can use these days at their own discretion and without explanation during the term. For instance, a student could submit their assignment 3 days late. **The latebank cannot be used for the final project.** This is designed to provide students with some flexibility regarding personal situations, illness, workload management, or other concerns that may arise during the course timeline. Once you have used up your 3 late bank days, a penalty of 10% per day will apply for unexcused late submission.

Attendance:

Students are expected to regularly attend lectures and laboratories. Missing these regularly without adequate rationale will not only impact your ability to successfully complete the course, in extreme cases the instructor reserves the right to ask the student to withdraw from the course. You are not required to inform the instructor if you miss a class, but you should coordinate with a friend in the class to obtain any notes and instructions missed. Failure to communicate with the instructor regarding multiple absences or extenuating circumstances severely limits your ability to receive any accommodations.

Grade Summary:

The available letters for course grades are as follows:

Letter Grade	GPA	Percentage
A+	4.00	96-100
A	4.00	91-95
A-	3.70	86-90
B+	3.30	82-85
B	3.00	75-81
B-	2.70	72-74
C+	2.30	68-71
C	2.00	63-67
C-	1.70	60-62
D+	1.30	56-59
D	1.00	50-55
F	0.00	0-49

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.