

Course ID:	Course Title:	Fall 2020
BHS 410	Basic Multivariate Statistics	Prerequisites: BHS 240 BHS 310
		Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	Monday	Instructor:	Mitch Colp, PhD	First day of classes:	September 9
Time:	(Class) 2:30pm-5:15pm (Lab) 5:30pm- 7:30pm	Email:	Mitchell.Colp@ambrose.edu	Last day to add/drop, or change to audit:	September 20
Room:	Virtual	Office:	Virtual	Last day to request revised exam:	November 2
Final Exam:	December 14, 2020	Office Hours:	By Appointment	Last day to withdraw from course:	November 20
				Last day to apply for coursework extension:	November 23
				Last day of classes:	December 14

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

Field, A., (2013). *Discovering statistics using IBM SPSS statistics* (4th Ed.). Thousand Oaks, CA: Sage Publications Inc.

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	Readings	Deadlines
1	September 14	Introduction to Measurement	None	---
2	September 21	Issues of Reliability in Measurement	None	---
3	September 28	Issues of Validity in Measurement	None	---
4	October 5	Linking Research Method to Statistics	None	---
5	October 12	Thanksgiving (No Class/Tutorial)		
6	October 19	Correlation & Regression	Field Chapter 8 & 9	Lab Assignment #1 Due: October 26
7	October 26	ANOVA & Factorial ANOVA	Field Chapter 12 & 14	Lab Assignment #2 Due: November 2
8	November 2	Examination #1		---
9	November 9	Reading Week (No Class/Tutorial)		
10	November 16	Multivariate ANOVA	Field Chapter 17	Lab Assignment #3 Due: November 23
11	November 23	Discriminant Function Analysis	Field Chapter 17	Lab Assignment #4 Due: November 30
12	November 30	Exploratory Factor Analysis	Field Chapter 18	Lab Assignment #5 Due: December 7
13	December 7	Review	None	Research Proposal Due: December 11
14	December 14	Examination #2		---

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
Learning Task #1	Research Proposal	30%
Learning Task #2	Laboratory Assignments	30%
Learning Task #3	Examinations	40%

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. Except for the scheduled examinations, the reading quizzes and article review is 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 weekly reading quiz 3 days late. **The late bank cannot be used for any of the scheduled examinations.** 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 submissions.

Learning Task #1: Research Proposal (30%) – December 11, 2020

Students will work together in groups of 2-3 to develop a research question based on some existing published research in psychology or sociology. They will be required to produce a research proposal that provides background information on the topic, identifies a research question(s), outlines a research methodology, and defines a multivariate analysis that

can be used to answer the identified question(s). More details regarding this assignment will be provided by the instructor during schedule class or laboratory time.

Learning Task #2: Laboratory Assignments (30%) – Various Due Dates

Throughout the semester, students will work independently to complete applied problems associated with assigned readings, lectures, and laboratory learnings. Students will submit completed responses to the instructor by email before 11:59pm MST on the assigned due date. These brief assignments will be combined to make up the 30% mark once all have been submitted.

	Assignment Topic	Date Due
Laboratory #1 Assignment	Correlation & Regression	October 26
Laboratory #2 Assignment	ANOVA & Factorial ANOVA	November 2
Laboratory #3 Assignment	Multivariate ANOVA	November 23
Laboratory #4 Assignment	Discriminant Function Analysis	November 30
Laboratory #5 Assignment	Exploratory Factor Analysis	December 7

Learning Task #3: Examinations (40%) – October 19, 2020 and December 14, 2020

Students will be given three time-limited examinations that assess their knowledge, understanding, and synthesis of course materials and core concepts. The examinations are expected to be completed independently.

Examination #1 – October 19, 2020: The exam will cover the first four weeks of lecture and constitute 20% of the final grade. It will contain a series of short answer and multiple-choice questions. The exam questions will be taken from the assigned chapter readings and presented lectures. They will include theoretical and applied applications of knowledge. Students will be given three hours to complete the examination.

Examination #2 – December 14, 2020: The exam will encompass assigned readings and lectures hosted between Weeks 7 and 13. This second examination will constitute 20% of the final grade. It will contain a series of short answer and multiple-choice questions. The exam questions will be taken from the assigned chapter readings and presented lectures. They will include theoretical and applied applications of knowledge. Students will be given three hours to complete the examination.

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 Academic Policies:

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. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

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 List of Important Dates. 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.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. 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.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

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.

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.