

BHS 410

Fall 2016

Basic Multivariate Statistics

3 Credits

Class Information		Instructor Information		First day of classes:	Wed, Sept 7, 2016
Lectures	Tues/Thurs 9:45-11:00am	Instructor:	Brianne M. Collins, MSc PhD Candidate	Last day to add/drop, or change to audit:	Sun, Sept 18, 2016
	A1085-1	Email:	bcollins@ambrose.edu		
Labs	Mondays	Phone:	403-410-2000 (ext. 6904)	Last day to request revised exam:	Mon, Oct 24, 2016
	4:00-5:15pm A2131			Last day to withdraw from course:	Mon, Nov 14, 2016
Final Exam day		Office:	L2107	Last day to apply for time extension for coursework:	Mon, Nov 21, 2016
Take Home Final Exam Due: Friday, December 16		Office Hrs:	Tuesdays 1:00-2:00pm, or by appointment	Last day of classes:	Mon, Dec 12, 2016

Textbook (Optional): Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4th Ed). London, UK: SAGE.

Additional Readings: Additional readings (i.e., journal articles) will be assigned throughout the course as required.

Note: Please ask if you are in need of additional resources to aid you in understanding course content.

Supplies: Scientific calculator with statistical functions (between \$15-20)

Course Description (Academic Calendar):

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:

By the end of this course, students will have the necessary knowledge and skills to be able to:

- Determine the most appropriate statistical analysis to compute based on a given research question, study design, and the data collected.
- Analyze univariate (i.e., one outcome) and basic multivariate (i.e., more than one outcome) quantitative data using a statistical software package (i.e., SPSS).
- Interpret results obtained via statistical analysis and compose accurate and informative results sections that meet APA/ASA style guidelines.
- Identify a number of current debates within the field (e.g., limitations of the NHST, P-Hacking).
- Conduct a collaborative replication of a published study and analyze and interpret the results.

Course Schedule:

All lecture and assignment handouts will be posted on Moodle and most will be distributed in class.

Week	Date	Lecture Topic		
1	Thurs, Sept 8	Course Introduction		
2	Mon, Sept 12	Syllabus Quiz due on Moodle by 11:55pm		
	Tues, Sept 13			
	Thurs, Sept 15	'The Amazing Race': BHS 310 Review		
3	T C + 20	Introduction to Group Replication Project		
	Tues, Sept 20	Complete CATME Team-Maker Survey by Tuesday, Sept 20 at 11:55pm via email link		
	Thurs, Sept 22			
	Tues, Sept 27	Replication and Validity; Review of Ethics		
4	Thurs, Sept 29	No Class (Spiritual Emphasis Days)		
	Tues, Oct 4			
5	Thurs, Oct 6	Introduction to the GLM Model; Correlation		
C	Tues, Oct 11			
6	Thurs, Oct 13			
7	Tues, Oct 18	Regression: Linear, Multiple, Hierarchical		
,	Thurs, Oct 20			
8	Tues, Oct 25			
0	Thurs, Oct 27			
9	Tues, Nov 1			
	Thurs, Nov 3			
10	Tues, Nov 8			
	Thurs, Nov 10	ANOVA, ANCOVA, Factorial ANOVA, Mixed Design ANOVA, MANOVA		
11	Tues, Nov 15			
	Thurs, Nov 17			
12	Tues, Nov 22			
_	Thurs, Nov 24			
13	Tues, Nov 29	Non-Parametric Tests		
	Thurs, Dec 1			
	Tues, Dec 6			
14	Thurs, Dec 8	Critiques of the NHST		

15	Mon, Dec 12	Group Replication Project Due on Moodle by 11:55pm Peer Evaluations Due on CATME System (via email link) by 11:55pm Engagement and Civility Self-Assessment Due on Moodle by 11:55pm	
	Fri, Dec 16	Take Home Final Exam Due on Moodle by 11:55pm	

<u>Note</u>: The above course schedule is *always* subject to change and at the discretion of the instructor. It is important therefore to attend all classes and to check your Ambrose email account and Moodle for updates and/or changes.

Requirements:

Component	Date/Deadline	% of Final Grade
Syllabus Quiz	Monday, September 12	2%
Lab Assignments	See lab schedule on Moodle	45%
Group Replication Project	Monday, December 12	25%
Take Home Final Exam	Friday, December 16	20%
Engagement and Civility	Ongoing	8%
	TOTAL	100%

Note: In order to pass the course, <u>all</u> components of the course must be submitted (and in complete form).

Syllabus Quiz (2%) – Due: Monday, September 12 by 11:55pm on Moodle

Given that a syllabus is a contract between instructors and students, it is very important you are familiar with the contents of this document. Knowing key details will ensure your success in the course since you will be familiar with submission deadlines, instructor policies, etc. As a way to encourage familiarity with the syllabus, you will complete a quiz electronically via Moodle by the deadline noted above.

While you will only have <u>one</u> chance to complete the quiz online, there will be no time limit so you can take your time ensuring the accuracy of your answers. Please note that late quizzes will <u>not</u> be accepted (see 'Late Assignment Policy').

Lab Assignments (45%) - Due: Throughout semester (see lab schedule posted on Moodle)

The laboratory component of the course is <u>mandatory</u> and is designed to facilitate experiential learning and practical application of the material. It will also facilitate work on the group replication project. Unless otherwise indicated, lab assignments will be due on Moodle by 11:55pm on the dates specified in the lab schedule posted on Moodle. Handouts with specific details (e.g., requirements, formatting, etc) for each lab assignment will be provided and posted on Moodle. Late lab assignments will receive 10% off per day (see 'Late Assignment Policy').

Group Replication Project (25%) – Due: Monday, December 12 by 11:55pm on Moodle

This is a collaborative learning project that is intended to foster collegiality, encourage practical engagement with course content, allow for an opportunity to replicate a psychological study, and contribute directly to the disciple of psychology. The project will be broken down into a number of steps, some of which will coincide with lab assignments (see lab schedule to be posted on Moodle). A final research report (20% of your grade) will be due on Moodle by 11:55pm on Monday, December 12. Details regarding the project, steps required, and related lab assignments will be discussed in class on Tuesday, September 20.

Group Membership. For this project, you will be assigned to groups using an online tool called CATME (for more information: <u>http://info.catme.org</u>). Within the first week of the semester, you will receive an email (sent to your Ambrose email account) with a link to create a CATME account. You will then receive a second email inviting you to complete the team-maker questionnaire. <u>You must complete the questionnaire by Tuesday, September 20 at 11:55pm</u>. Once data from all members in the class has been received, groups will be generated by the system and you will be informed of the names of your group members.

Peer Evaluation (5%). On the same day that the group project is due (i.e., Monday, December 12), each group member will also be required to submit peer evaluations via the CATME system (using the link emailed to you). In order to complete your peer evaluations, you will be required to practice rating fictional team members. This rating practice will provide you with guidance that will enable you to fairly and effectively evaluate your peers. In the event that you do not complete the peer evaluations (including rater practice) within the time allotted, you will receive 0 on this component of the project. Groups are expected to work collaboratively (thus you will not be graded individually on any components you contribute to the whole). Withstanding extreme circumstances as determined in consultation with the instructor, all members of the group will receive the <u>same</u> grade on the project. In the case of any disputes, groups will be dealt with on a case-by-case basis using the information gathered by peer evaluation and groups may be required to meet with the instructor in person.

Please note that late replication final reports will lose 10% per day (see 'Late Assignment Policy'). One group member will be responsible for submitting the entire report in accordance with the submission guidelines (see handout). The responsible group member should be sure to submit the report with ample time to ensure no late penalties are incurred.

Take-Home Final Exam (20%) – Due: Friday, December 16 by 11:55pm on Moodle

In order to evaluate overall theoretical and practical comprehension of course material, students will complete a takehome final exam. Students are to work independently and will need to submit individual final exams—evidence to the contrary will be considered an act of intellectual dishonesty and will be dealt with accordingly. More information on the final exam will be discussed in class towards the end of the semester.

The final exam will be distributed at the end of the last class on Thursday, December 8. The exam (including write-up, outputs, graphs, and any other necessary components) is to be submitted on Moodle no later than 11:55pm on Friday, December 16. While late exams will be accepted for up to five days, 10% will be deducted per day late (see 'Late Assignment Policy').

Engagement and Civility (8%) – Due: Self-Assessment due Monday, December 12 on Moodle by 11:55pm

Given the nature of this course, active participation in the course is central. Thus, as a member of the BHS 410 learning environment, you will be assessed on both your engagement and civility in the classroom/lab. Engagement includes participation in class and small group discussions, classroom activities, and in class group work. Engagement can also be seen when students demonstrate initiative, ask questions, question their own assumptions, and meet with the instructor to discuss course content and requirements. The <u>civility</u> component concerns your attitude and behaviour in the classroom context. Students demonstrate civility when they respect the opinions of others, arrive on time, attend classes regularly, avoid using social media during class time, refrain from side conversations with peers during lecture times, and take ownership for their learning. Please note that bullying in any form (e.g., intimidation, harassment, demoralizing) will not be tolerated and will result in an automatic zero on this component of the course.

In order to assess engagement and civility, half of the grade will be contributed by you via self-assessment (4%). Your self-assessment will consist of evaluating yourself on the rubric provided on Moodle and must include specific anecdotal evidence that supports your evaluation. The second half of the grade (4%) will be contributed by the instructor using the

same rubric. Please note that failing to include adequate (or any) anecdotal evidence will mean that you will only be eligible to receive 2% of the 4% for your self-evaluation, and the instructor's assessment grade will increase to 6%. If you do not submit the self-evaluation form at all, you will receive 0 on your portion of the grade.

Self-assessments are to be submitted electronically using the form provided on Moodle and will be due on Monday, December 12 by 11:55pm. Late self-assessments will <u>not</u> be accepted (see 'Late Assignment Policy').

Instructor Policies

Attendance Policy

Students are expected to regularly attend lectures. Missing class 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. Failure to attend classes regularly will also significantly impact your Engagement and Civility grade.

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 accommodation or leniency should the situation normally support such a solution.

Late Assignment Policy

Assignments/exams are considered late when they are submitted six or more minutes late on Moodle (i.e., 12:01am and beyond). Be sure to plan ahead for timely completion *and* give yourself ample time to upload your assignments to ensure there are no technical difficulties encountered at the last minute. In the case of extenuating circumstances, appropriate documentation (e.g., a doctor's note) must be provided in order to submit an assignment/exam past the deadline.

It is your responsibility to ensure all assignments can be opened for marking, so be sure to check your file(s) on an additional computer prior to submitting (you can also double-check once you have uploaded your assignment to Moodle). Consequently, any assignment that cannot be opened for marking (e.g., file error, corrupted file, format not as requested) will be marked as received. Thus, if the assignment cannot be opened, it will be considered as having no content and will be given a grade of 0. Alternatively, if the instructor is able to open the document, whatever is visible in the file will be marked as it is presented.

Regrading Policy

Once your graded work has been returned to you, you have one week (i.e., 7 days) to submit a request for regrading. Regrading is <u>not</u> for negotiating a higher grade, but is intended to correct grading errors (e.g., miscalculation).

For work graded electronically, your request should be submitted by email to the instructor with a written request (in the body of the email) indicating why you are seeking regrading. For work graded by hand, you must resubmit the graded assignment and provide your rationale for your request on a separate sheet attached. In both instances, requests for regrading must indicate where and why you believe there was an error. Generic statements such as, but not limited to, "my explanation was close," "I worked hard on this," or "I deserve partial credit" are not considered adequate rationale for regrading. Failure to be respectful in your request will result in the immediate refusal of your request.

Please note, when work is submitted for regrading, the entire work will be subject to review, regardless of the rationale provided in the request. It is important to note that regrading may result in a <u>lower</u> grade, which will not be eligible for a second request for regrading.

Electronic Communication Policy

Whenever possible, the instructor will respond to all emails within 48 hours during the week (Monday to Friday). In most cases, emails received on weekends will be responded to on Monday. Although the instructor may respond to occasional emails on a weekend, please remember that responses on the weekend cannot be guaranteed.

In addition, as email is not always a practical means to address questions or concerns regarding course content or requirements, the instructor may email students back with a request to meet to discuss the email in person.

When sending an email, please address the instructor by name (not 'hey' or with no salutation), keep your tone professional and respectful, and please end the email with your name. Failure to follow these guidelines may result in an email not being returned.

Grade Summary:

Letter Grade	Percentage	GPA	Description
Α	96% and above	4.0	
A	91 – 95%	4.0	Excellent
A-	86 – 90%	3.7	
B+	82 – 85%	3.3	
В	75 – 81%	3.0	Good
В-	72 – 74%	2.7	
C+	68 – 71%	2.3	
С	63 – 67%	2.0	Satisfactory
C-	60 – 62%	1.7	
D+	56 – 59%	1.3	
D	50 – 55%	1.0	Minimal Pass
F	Below 50%		Failure

The available letters and percentages for course grades are as follows:

The BHS grading chart will be posted on Moodle to provide detailed information as to the quality of work needed to attain a given letter grade. Please note that it is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examination is between two letter grades.

Because of the nature of the Alpha 4.00 system, there can be no uniform College-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.

Resources for Students:

Accessibility and Support Services (formerly Learning Services)

The primary mission of Ambrose University's Accessibility and Support Services Centre in to assist students in achieving academic success. It accomplishes this through a wide variety of services and programs. Accessibility and Support Services are available to all students who wish to improve their academic skills and ability to learn, thereby maximizing their academic experience and allowing them to achieve greater academic performance and personal fulfillment. The centre also has as its mandate, the specific and complementary responsibility of providing support for students with learning and/or physical disabilities, and ensure for them equal academic opportunities.

What if I have a Learning Disability or think that I might have one?

If you are already diagnosed with a learning disability then we will work one-on-one with you. This could include any number of accommodations and is specific to each individual. If you are wondering if you do have a learning disability we can work with you to pursue testing and to try different strategies to see if it helps with the challenges you are encountering. It is important to remember that we cannot help you if you do not tell us you are experiencing difficulties. All information is kept confidential and any accommodations are handled discreetly.

What if I have a Physical Disability?

If you have a physical disability we will work with you to determine what we can do to help.

Contact Information

Feel free to drop in to room A2018, Monday through Friday from 8:30am to 4:30pm.

Contact by phone (403-410-2937) or email (accessibility@ambrose.edu).

For more information, please visit: https://ambrose.edu/student_life/learning-services

Counselling Services

Confidential, personal, pastoral, and vocational counseling is available to all students through the Student Development Department. Ambrose substantially subsidizes counseling services; however, there is still a nominal fee of \$30 per appointment that will be charged to your student account at the end of each month, for each scheduled appointment. There is a \$75 fee that will be charged to your student account if you cancel or miss your appointment withint 24 hours of your scheduled time. Under extenuating circumstances, if you need to change or cancel your appointment within the 24 hour period, contact Liz Jantzen (ejantzen@ambrose.edu).

How do I book an appointment?

Appointments can be booked online here: <u>https://my.ambrose.edu/content/counselling-services</u>.

To book in person visit Liz Jantzen in Student Development (room A2018, Monday through Friday from 8:30am to 4:30pm).

Contact Information

For additional information, please visit: <u>https://ambrose.edu/student_life/counselling-services</u>.

Drop by Student Development in room A2018 (Monday through Friday, 8:30am-4:30pm) and speak to Liz Jantzen if you have any additional questions or concerns.

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.

Exam Scheduling

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.

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 devises 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 college. 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.

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