

BUS 250: Applied Math in Business
2021 Summer Session I [5/24–7/2]
Sections 601 & 602 Online

This syllabus is subject to change as the term progresses.

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Phone:	Please begin the Subject Line with: BUS 250 956–7255 (no voice messages—please send e-mail)
Office:	Online
Office hours:	By appointment via Zoom
Required:	(1) WebCam [integrated or USB] on system running MacOS or Windows (1) ALEKS (Assessment & Learning in Knowledge Spaces), via IDAP. (2) Bowerman, et al. <i>Business Statistics & Analytics in Practice</i> 9e with McGraw-Hill (MH) Connect, bundled via IDAP (3) Olivier, Business Math: A Step-by-Step Handbook (Chs. 8-14 @ lyryx.com, an “open” text) (4) Calaway, Hoffman, & Lippman Applied Calculus (an “open” text) (5) Laulima @ https://laulima.hawaii.edu/ (6) Texas Instruments BA II Plus / Professional Financial Calculator Students are expected to have their BA II Plus/Pro available. (7) Microsoft Excel*—Students using the Web-based version of Excel through Office Online should try to use computers in Lab E101 to save and submit homework as an Excel file;
Recommended:	(8) Wolfram Alpha (free): http://www.wolframalpha.com/ (9) BA II Plus Guidebook (Free Registration or Continue as Guest) (10) [CVP1] https://saylordotorg.github.io/text_managerial-accounting/s09-how-do-organizations-identify-.html (11) [CVP2] https://www.cliffsnotes.com/study-guides/accounting/accounting-principles-ii/cost-volume-profit-relationships/cost-volume-profit-analysis

READ THIS CAREFULLY BEFORE BEGINNING THIS COURSE

This is an online course which means that it is taken via a computer and the Internet. It should go without saying, but unless you possess **both** of these capabilities you **will not** be able to complete this course successfully. In this online course, you should be aware of certain requirements: You must have **both** basic computer literacy in order to navigate the course requirements **and** have a reliable high-speed connection to the Internet. If you find that you are not able to navigate and operate within the first week, you should consider dropping and take an in-person course. Students **must** have easy access to a computer, which includes laptops.

Responsibility to drop the course should be for you to decide, in consultation with your academic adviser. Unfortunately, some students seem to **NOT** succeed in the “distance learning” format due to technical difficulties.

Students will be required to run their Webcam to self-proctor all quizzes and exams. If you do not want to upload videorecordings of yourself taking quizzes and exams, please drop this course and register for an in-person section. By continuing this this course, you agree to submit videorecordings of yourself to the Tegrity system, which will maintain them for one semester after the course is completed.

PREREQUISITES

Two years of high school algebra and one year of plane geometry.

NOTE: Students are recommended to be familiar with Microsoft Excel at the level of ICS 101.* Nearly all businesses use Excel as an application. Since most students are preparing themselves to enter the workforce, students are discouraged from using the Web-based Office Online version of Excel and strongly encouraged to use the stand-alone installed software version Excel specifically on Windows.

COURSE LEARNING OUTCOMES

1. Be able to apply the framework of time value of money (TVM) to find the solution to problems involving present value (PV), future value (FV), annuities (PMT), and “vanilla” bonds.
2. Be able to explain how the concept of independence leads to some probability distributions of random variables.
3. Be able to sum up the probabilities from a discrete distribution function, $p(x)$ to compute probabilities of compound events.
4. Be able to (a) determine the area under a continuous distribution function, $f(x)$, to obtain probabilities and (b) in general explain that the Riemann Integral can be used to compute the area under any piece-wise continuous function.
5. Be able to explain how a test statistic from a sample relates to its sampling distribution and use the test statistic to reject or not reject the null hypothesis, H_0 .
6. Be able to construct the error function for data and explain how taking its derivative minimizes it and provides the slope and intercept coefficients for the best-fit line.
7. Develop familiarity with the Texas Instruments TI-BA II Plus (or Professional) calculator.

STATEMENT OF FOUNDATIONS - QUANTITATIVE REASONING (FQ)

FQ courses should strive to impart an appreciation for the relevance and usefulness of quantitative reasoning. We define quantitative reasoning as the ability to apply mathematical concepts to the interpretation and analysis of quantifiable information, expressed numerically or graphically, in order to solve a wide range of problems, from those arising in pure and applied research to everyday issues and questions. It includes the ability to:

- understand and communicate quantitative information using such tools as variables and equations, graphs and charts, words/sentences;
- apply math skills;
- judge reasonableness of results; and
- recognize the limits of mathematical or statistical methods.

* Basic Excel skills include the use of formulas, references to cells, and locking of rows or columns.

The primary goal of FQ courses is to teach mathematical reasoning and tools at the college level. While additional course material (natural science, social science, etc.) can serve as a valuable context for learning these skills, it should not overshadow the primary goal.

[FQ Hallmarks | Quantitative Reasoning \(hawaii.edu\)](#)

STRATEGIES FOR FULFILLING GOALS AND REACHING THE OBJECTIVES

Students are expected to listen to every class meeting on Tegrity (accessible through MH Connect) and do their homework, both in ALEKS and MH Connect, in a timely manner.

Students should check the “Syllabus” tool (on the left) of Lulima to find the PDF guided notes for the class meeting and then go to Tegrity to view the class session.

ASSIGNMENTS

Mathematics is a skill that is developed through practice. Regular practice (through homework and additional optional practice) is an important part of the course. Assignments will be administered through ALEKS (Assessment & LEarning in Knowledge Spaces) and McGraw-Hill (MH) Connect which are both included (as a bundle) through the Interactive Digital Access Program, IDAP. There is a separate section later in this syllabus that provides more information on IDAP.

Most homework assignments are available through McGraw-Hill (MH) Connect. Some homework assignments that may involve Excel will be available online through Lulima’s assignments.

ALEKS is an adaptive learning platform. You should take the initial knowledge check as soon as possible. ALEKS will provide you with a series of questions. If you answer them correctly, your “ALEKS pie percentage” will increase and ALEKS will move on to the next topic. If you do not answer correctly, ALEKS will provide additional practice to help you understand the material. Periodically, ALEKS will administer a “knowledge check” which can increase or decrease your “ALEKS pie percentage.”

Students are responsible for completing homework assignments through MH Connect or Lulima’s assignments in a timely manner.

Homework is Due the Next Day: Students should keep in mind that all homework is due the next day. However, all students will always receive an automatic two-day extension. Therefore, because homework assignments have already been automatically extended, ***NO ADDITIONAL EXTENSIONS FOR ASSIGNMENTS WILL BE GIVEN.*** Only in the case of substantial medical emergencies accompanied with a note from a physician’s (medical doctor, M.D.) office (the note may be signed by a nurse, but the “letter head” or “prescription pad” ***MUST*** contain the doctor’s name) will extensions be considered. The doctor’s note should include dates of treatment and request dates of assignments that should be extended.

ADMINISTRATION

Registration: Students who have issues with or questions about registration should contact the [Office of Student Academic Services \(OSAS\) whose website is given here.](#)

Communication: Email is the preferred communication method in emergency. **Grades will not be discussed grades through email.** Students should check the course Laulima website one day before each class session.

Examinations: There will be weekly quizzes and one final exam. All quizzes and exams will be closed-book. Exams will be written assuming that students have the TI BA-II Plus (or Professional) financial calculator available. In the in-person version of the course, no other electronic devices, other than that specific calculator, may be used during exams. In particular, cell phones “just as calculators” may not be used at all in neither the in-person nor distance version of the course. If exams are offered via computer, including the distance version of the course, students may be allowed to use Excel on particular quizzes or exams.

Students are expected to take quizzes and exams during a pre-specified window. Make-up exams may be given only under *very rare* circumstances, and the instructor reserves the right to deduct points as deemed appropriate. Make-up versions quizzes or exams may be different (harder) from the version administered on the scheduled day. If an exam must be missed, the student **MUST** request approval from the instructor **PRIOR** to the absence. **No make-up exam will be given without prior approval.** Make-up exams will be considered only in legitimate, unavoidable circumstances (serious illness, family emergency, etc). Proper documentation for the absence must be presented. If allowed, make-up exams will be scheduled at the discretion of the instructor. Make-up quizzes or exams may be more rigorous, graded to a higher standard than the original, and not offer bonus points or additional credits of any kind. If students believe that there is an error in the grading of an exam, they should call it to the instructor’s attention **within a week after the results are posted on Laulima.**

Tegrity Self-Proctoring Recordings: Students must have a laptop running MacOS or Windows to use Tegrity Self-Proctoring Recordings while taking tests and quizzes (ChromeBooks may not be fully supported at this time). Students will need their UH Id or any government-issued photo ID (Like a State Driver’s License or passport of any nation, etc). Students will take a photo of themselves and their ID before beginning the Tegrity Self-Proctoring Recording. After completing the test (quiz or exam), students must remain online for the self-proctoring recording to fully upload.

Failure to upload a complete recording may result in a zero (0) for that test (quiz or final exam).

More details on the usage of Tegrity will be provided on Laulima.

Honor Pledge at Each Examination: On the first page of each exam booklet, students will be asked to sign the following Honor Pledge:

On my honor as a student at the Shidler College of Business at University of Hawai‘i at Mānoa, I pledge that I have neither given nor received aid on this exam.

I also pledge that I have read the Syllabus and am in compliance with the policies stated therein.

Therefore, students should read this entire Syllabus carefully *before* the first exam, and review it periodically, so that they can follow it and meaningfully sign the Honor Pledge at each exam.

Grading: Each student's grade for the course will be based on scores in the following areas using the following weights:

Description	Percent
Participation	5
ALEKS	20
Homework	30
Quizzes 1-5	25
Final Exam	20
Total	100

There are no quotas for particular grades. Grading will be based on a reasonable curve with scores in the average receiving a low B or high C, and scores away from the average receiving A or D. Pluses and minuses may be awarded in grading. Although A+ will not make any difference (from A) in your GPA, an A+ may be assigned if earned.

Extra Credit: Extra credit may be available to students who have completed their homework assignments. Students who have completed *ALL* of their regularly-assigned homework assignments with 60% or higher correct are eligible to receive extra credit. Students should spend their study time learning the main course material instead of trying to picking-up extra credit points to get a higher grade.

COURSE COMPLIANCE WITH VARIOUS CAMPUS POLICIES:

All rules and policies of the University of Hawai'i at Mānoa and the Shidler College of Business will be followed in the course.

Students with Disabilities: Any student who has a documented disability and requires accommodations is strongly encouraged to contact me or the KOKUA Program located in Room 13 on the first floor of the Student Services Center (also KOKUA Program Director at 956-7511 or visit their webpage: <http://www.hawaii.edu/kokua/>).

Academic Honesty: Cheating and Plagiarism will not be tolerated. All incidents will be handled in accordance with the UH *Student Code of Conduct*. The UH Student Code of Conduct, is available at: <http://www.hawaii.edu/student/conduct>. The most relevant portions are included below for your convenience.

Because UHM is an academic community with high professional standards, its teaching, research, and service purposes are seriously disrupted and subverted by academic dishonesty. Such dishonesty includes cheating and plagiarism as defined below. Ignorance of these definitions will not provide an excuse for acts of academic dishonesty.

INTERACTIVE DIGITAL ACCESS PROGRAM (IDAP)

This course will be participating in the Bookstore's Interactive Digital Access Program (IDAP). Through this program, you will access your course material digitally, and it will be available to you by the first day of class. A charge for the digital course material through IDAP will be added to your MyUH account. You have the option to opt-out of receiving your course material through IDAP. By opting-out, you will lose access to the course material and the charge will be refunded on your MyUH account. If you do not opt-out, the charge will stay on your MyUH account. Any unpaid charges on your MyUH account will turn into a hold. Holds on your account will prevent you from accessing various services within the University.

You may opt-out by visiting your unique Inclusive Access Student Portal, which can be found in your IDAP welcome email (Subject Line: "IMPORTANT: You have enrolled in an IDAP Course"). For more information regarding IDAP, please contact your campus bookstore.

[Interactive Digital Access Program \(IDAP\) | University of Hawai'i Manoa Bookstore \(hawaii.edu\)](#)

IMPORTANT Definitions for Plagiarism and Cheating.

Cheating includes but is not limited to giving or receiving unauthorized assistance during an examination; obtaining unauthorized information about an examination before it is given; submitting another's work as one's own; using prohibited sources of information during an examination; fabricating or falsifying data in experiments and other research; altering the record of any grade; altering answers after an examination has been submitted; falsifying any official University record; or misrepresenting of facts in order to obtain exemptions from course requirements.

Plagiarism includes but is not limited to submitting, in fulfillment of an academic requirement, any work that has been copied in whole or in part from another individual's work without attributing that borrowed portion to the individual; neglecting to identify as a quotation another's idea and particular phrasing that was not assimilated into the student's language and style or paraphrasing a passage so that the reader is misled as to the source; submitting the same written or oral or artistic material in more than one course without obtaining authorization from the instructors involved; or "drylabbing," which includes obtaining and using experimental data and laboratory write-ups from other sections of a course or from previous terms.

Optional Extra Credit

There are two OPTIONAL opportunities for students to earn extra credit:

1. McGraw-Hill (MH) SmartBook Reading Assignments with Reading Quiz
2. Meaningful replies to Lualima Discussion Questions

MH Connect includes SmartBook Reading Assignments

Technical writing, like that found in a textbook, is **NOT** meant to be read like a novel! Instead, there are typically descriptions of principles followed by examples. Developing the skill of reading technical writing is an important professional skill. The McGraw-Hill (MH) SmartBook provides a

way to develop this skill by allowing you to highlight main ideas that you should read first, while skimming the sections with details. You can return to those later.

SmartBook provides some multiple choice questions based on the reading material. Students who wish to earn extra credit may read and take the OPTIONAL SmartBook quizzes.

Meaningful Replies to Lauima Discussion Questions

From time-to-time, students may post questions in the Lauima Discussion Forum “Questions.” When students post questions, everyone tends to wait for the instructor to respond to the question. To encourage students to help each other, extra credit points may be awarded to students who respond in a meaningful way to help other students.

Course Schedule for BUS 250

The schedule is subject to change as the term progresses.

Date	Day	c	Topic
5/24	M		1-1 Time Value of Money (TVM): Cash Flow Diagrams, Compounding, & Future Value (FV)
5/25	Tu		1-2 TVM (cont'd): Fin § 4.2 PV & Annuities (PMT)
5/26	W		1-3 TVM Bond Problems & Bowerman § 4.1 Probability, Sample Spaces, & Probability Models
5/27	Th		1-4 Bowerman § 4.2 Probability and Events & § 4.3 Some Elementary Probability Rules
5/28	F		1-5 Review of TVM & Elementary Probability
5/31	M		<i>Holiday: Memorial Day – No classes.</i>
6/1	Tu		2-1 Quiz 1* / Bowerman § 4.4 Conditional Probability & Independence
6/2	We		2-2 Bowerman Ch 6 Discrete Random Variables (r.v.) ~ § 6.1 Two Types of r.v.
6/3	Th		2-3 Bowerman § 6.2 Discrete Probability Distributions
6/4	F		2-4 Bowerman § 6.3 The Binomial Distribution, $B(n, p)$
6/7	M		3-1 Quiz 2* / Bowerman Ch 7 Continuous (r.v.) / § 7.1 Continuous Probability Distributions
6/8	Tu		3-2 Bowerman § 7.2 Uniform Distribution & CHL Applied Calculus Ch 3 The Integral
6/9	W		3-3 CHL § 3.1 The Definite Integral & Bowerman § 7.3 The Normal Probability Distribution
6/10	Th		3-4 Bowerman § 7.3 The Normal Probability Distribution, $\mathcal{N}(\mu, \sigma^2)$ (cont'd)
6/11	F		<i>Holiday: King Kamehameha Day – No classes.</i>
6/14	M		4-1 Quiz 3* / Bowerman Ch 8 Sampling Distributions & Central Limit Theorem (CLT)
6/15	Tu		4-2 Bowerman § 8.1 The Sampling Distribution of the Sample Mean
6/16	W		4-3 Bowerman Ch 10 Hypothesis Testing
6/17	Th		4-4 Bowerman § 10.1 The Null & Alternative Hypothesis and Errors in Hypothesis Testing
6/18	F		R4 Bowerman § 10.2 z Tests about a Population Mean: σ Known and Type I & Type II Errors
6/21	M		5-1 Quiz 4* / Bowerman § 14 Simple Linear Regression (SLR) Analysis
6/22	Tu		5-2 Bowerman § 14.1 The SLR Model & Point Estimates
6/23	W		5-3 Bowerman § 14.2 Calculate & interpret the simple coefficients of determination & corr.
6/24	Th		5-4 CHL Ch 2 The Derivative & § 2.1 Limits & Continuity
6/25	F		5-5 CHL § 2.1 The Derivative & § 3.2 The Fundamental Theorem of Calculus
6/28	M		6-1 Quiz 5* / Bowerman § 14.3 Model Assumptions and the Standard Error
6/29	Tu		6-2 Bowerman § 14.3 Model Assumptions and the Standard Error (cont'd)
6/30	W		6-3 Bowerman § 14.4 Testing the Significance of the Slope and y-Intercept
7/1	Th		6-4 Review
7/2	F		Final Exam [Pt I. “45 min” Tegrity optional] & {Pt II. “75 minute Quiz” Use Tegrity }*

***Quiz or exam. WEBCAM REQUIRED FOR SELF-PROCTORING VIA TEGRITY.**

[Stats] = *Introductory Statistics*

Most homework assignments are available through McGraw-Hill’s MH Connect. [Note that MH Connect is accessible through “McGraw-Hill” on Lulima]. Some homework assignments that may involve Excel will be available online through Lulima’s Assignments, Tests, & Surveys (ATS).

Students are responsible for completing homework assignments through MH Connect or Lulima’s ATS in a timely manner.

This syllabus and schedule are subject to change at any time at the discretion of the instructor.