

ECNS 403, Introduction to Econometrics, Spring 2024

<u>Location</u>	LA629
<u>Days</u>	09:20-10:20 MWF
<u>Instructor Information:</u>	Joshua P. Hill LA 812 (406) 657-2926 joshua.hill5@msubillings.edu
<u>Office Hours</u>	14:00-16:00 MT & by appointment

Description and Objectives

In this course we will focus primarily upon data: sources of bias, means of correcting for them, and how to use software packages correctly to make your life easier. The goal of this course is to assist you in becoming a discerning consumer of data. Achieving this goal will require that you get practical experience with data and econometrics.

A student who earns an "A" in this class

1. Will be able to recognise and properly correct for bias, inconsistencies, extraneous implicit factors, and alignment problems in data.
2. Will be able to analyse data through statistical tests for trend, and cyclical behaviour.
3. Will be able to critically evaluate the suitability of various forecasting techniques based on a priori analysis of the data.
4. Will be able to critically evaluate the suitability of various forecasting techniques based on a posteriori analysis of various goodness-of-fit criteria
5. Will know the underlying assumptions that are implicit in various forecasting techniques and be able to (a) test to see if the assumptions are violated in any particular forecast; (b) identify the consequences if the assumptions are violated in any particular forecast; and (c) make suitable corrections to either the data or the forecasting technique to correct for any identified violations of the forecasting assumptions.
6. Will be able to accurately apply and interpret all relevant statistical hypothesis tests involved in various forecasting procedures.
7. Will be able to apply common sense (including economic theory) in judging the validity of forecasts and hypothesised relationships between variables.

Required Materials

- Hanke, John E., and Dean W. Wichern, *Business Forecasting*, 9th Ed., Prentice Hall, 2009.
- Taubes, Gary. *Good Calories, Bad Calories*. Knopf, 2007.
- The Economist newspaper
- GRETLL: free GNU License software
- Microsoft Excel or Apple Numbers or another suitable spreadsheet program
- WebEx Teams and Webex Meetings

Evaluation

I am always happy to discuss what questions you miss on exams, quizzes, and homework and why you missed them but I do not discuss the points allocated.

Homework & Quizzes:	10%
Midterm:	25%
Project 1:	5%
Project 2:	30%
<u>Final Exam:</u>	<u>30%</u>
Total:	100%

Since I adjust grades for difficulty, the usual 90-80-70 grade breakdown does not apply in this course. The following provides a guideline for grades:

- A Demonstrates complete mastery of the tools of the semester. Additionally, exhibits an ability to apply them consistently and correctly to new situations and to draw insightful conclusions using the tools.

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- B** Demonstrates mastery of the tools of the semester. Additionally, exhibits an ability to apply them consistently and correctly to new situations.
- C** Demonstrates a competent understanding of the tools and an ability to apply the tools consistently and correctly.
- D** Demonstrates some understanding of the tools of the course but does not exhibit an ability to apply them consistently and/or correctly.
- F** Fails to exhibit an ability to use or an understanding of the tools of the term.

Class Format

While we have transitioned this class to an online format we are still going to meet. It will just be in video conference format.

Participation

There is no formal grade for participation, but if you are one of the students who in my judgment contributes most to the quality of class discussion your grade may be increased by one-third of a grade (e.g. B- to B, B+ to A-). This is the only deviation from the grading weights, the only "extra credit," and will be exercised purely at my discretion (i.e. it will not be the subject of debate or discussion).

Revisions to the Syllabus

This syllabus is subject to change. It is the duty of the instructor to inform students of changes in a timely fashion. Students are obliged to be cognizant of any changes.

Attendance

Though there is no attendance policy, students are responsible for all materials presented in class. Experience indicates a very high correlation between class attendance and grades received and/or learning acquired.

Homework & Quizzes

Homework is due at the start of class. No assignments will be accepted late, although they will be accepted early. Homework will only receive credit if completed in a professional manner. If you are unclear as to what this means please inquire.

Missing one or two assignments or quizzes is unlikely to dramatically affect your grade. A pattern of poor performance or failure to submit your work will.

Project

Do NOT ask for extensions; they will NOT be granted. Failure to turn in the Term Project on time will be penalized 10 percentage points on the project grade for every hour period (or fraction thereof) it is late. The term project is designed to follow the course sequence. As we progress through the course, you should complete those parts of the project that apply the techniques currently being covered. If you keep up with the project as the material is covered, you will not have any last-minute heavy burden placed on you in completing the project on time. If you procrastinate and find yourself trying to put the entire project together in the last week or two of class, the chances are good that you will not complete the project and take a major grade hit for doing so.

Exams

My goal is that my exams test the limits of your knowledge. Should you or anyone else score 100% I will have failed to do this. I also believe that the bottom 60% of the points are an underutilized resource. As a result I set very difficult exams with the average score usually somewhere around 50%. I also adjust the grades to take account of their difficulty. I will not provide you with the test questions in advance.

In an effort to insulate my assessment of your work from any bias I may have about you or your abilities I require that you write your name only on the back of the exam. In this manner I do not know who you are when I grade your work. I also grade all of the questions at once (all answers to question one, then all answers to question two, etc.). The result is that your grade will be based upon what is recorded on the paper. It is your responsibility to ensure that your written answer illustrates the full extent of what is in your head as I will be unable to impute mastery that is not recorded.

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The midterm will cover material from Chapters 1-5; the Final Exam will be comprehensive but will emphasise Regression Techniques. There will be no make-ups offered for missed exams except as required by official policy.

Studying, Office Hours, and Review

Learning economics is akin to learning a new language: it requires extensive practice. As such, you will not fare well if you fail to put in time outside of class working with the material and exploring the limits of your understanding. Attending classes will not be sufficient nor will simply working through assignments. I encourage you to:

1. Attend class, take notes, and review your notes
2. Submit homework and, when you receive feedback from me *review my feedback*. It is your responsibility to ascertain why you received the score that you did, to diagnose flaws in your reasoning, and to correct them for the next iteration.
3. Form study groups to meet regularly (at least once per week). Practice by quizzing each other and by posing each other the types of questions you believe that I will ask
4. Meet with me during my office hours

Withdrawals

Withdrawal from ECNS 403 without penalty is permitted according to University Regulations.

Incompletes

Incompletes will be given in accordance with the policy in the college catalog.

Honor System

All students enrolled in ECNS 403 are under the honor system. No form of cheating or plagiarism will be tolerated. Offenders will be dealt with in accordance with the procedures set forth in the college handbook.

Coursework and Schedule

We will start with Chapter 1 and work through to at least Chapter 9 in the textbook. Even if not covered explicitly in class, students will be expected to read Chapter 10 for the final exam.

The exact pace for the readings and the speed with which we cover specific material will depend on the needs of the class (especially in the beginning), but we WILL cover the material stated above. It is your responsibility to (a) know where we are in the textbook and lecture topics at all times (if you don't know, ASK!) and (b) identify when you need remedial assistance to seek it. If we push on to new material, that does NOT mean that the subjects that have been covered can be forgotten. Many ideas, themes, and techniques in this course are used over and over and it will be assumed that once a topic, concept, statistical test, or technique is covered, only cursory discussion will be required when it is applied subsequently in the course. Since the work in the course is sequential and cumulative; it must be done in the order presented. If you do not understand something, it is your responsibility to seek the necessary help to overcome any deficiencies. Failure to do so in a timely manner can be fatal to your success by the end of the semester. DO NOT GET BEHIND!!

Word to the wise: We will introduce many specific concepts that you have not encountered before. Some of these concepts will have quirky names such as "Multicollinearity" and "Heteroskedasticity." Make sure you understand what *all* concepts mean and how they are discerned and how they affect forecasts and choice of forecasting technique. This course will use algebra and math as an expository tool but you will not generally be called upon to compute forecasts by hand or even using a calculator; the actual number crunching will be done using computers. This makes it vitally important that you know the rationale, assumptions and limitations of various techniques and the criteria by which their suitability are judged.

Prerequisites

Due to the vagaries of bureaucracy, this course did not have prerequisites updated. Admission to this course was predicated on successful completion of the lower-division core in the College of Business even though it is no longer housed there. This created issues for some of you in registering.

In the end, this requirement has been changed for future course catalogs and has been honoured mostly in the breach. For reference, courses in that core that are of particular importance in preparing you for this class are: Economics 201,

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Economics 202, Statistics 241 or Stat 216, and Mathematics 121 or 143 (or better). Additionally, you should have mastered the rudiments of Microsoft Excel spreadsheets. We will briefly review statistics (confidence intervals and hypothesis testing), but *it is assumed organisationally that you are proficient and sufficiently up-to-speed in using and understanding basic algebra, statistics, spreadsheets, and economics or that you will be able to identify and correct any deficiencies in learning or recalling knowledge that is standardly presented in those courses.* I do realise that this is a heroic and unsupported assumption and I have structured the course accordingly. However, be aware that we may hit gaps in your or other individuals' knowledge that may have to be addressed during office hours/outside of class.

Non-content Course Dates

All bureaucratic and administrative dates (add, drop, etc.) can be found at <https://www.msubillings.edu/reg/academic-calendar.htm>

Covid/Illness

Should you fall ill or need to quarantine you will still be responsible for all course work and deadlines but you should obviously not attend class. If you would like to attend class virtually (that will, in fact, be the only way for you to take the daily quiz) please let me know and I shall make arrangements for you to do so.

Statement on Safe and Effective Learning Environment

MSUB endeavors to comply with university policies prohibiting sexual harassment and supporting Affirmative Action and Nondiscrimination. Therefore, intimidating, harassing, and disruptive behavior on all platforms will not be tolerated. All MSUB student policies can be found at: <http://www.msubillings.edu/VCSA/PDF/Studenthandbook.pdf>

DSS Support Services

Students with Disabilities:

MSU Billings is committed to providing equal access. If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please contact Disability Support Services (657-2283; located in the College of Education, Room 135). We can then plan how best to coordinate your accommodations.

Academic Support Center (ASC)

The ASC is committed to ensuring that MSUB's students achieve their educational objectives by offering a comprehensive collection of programs and services designed to support academic performance. Some services we provide include:

- Free tutoring on the University Campus, City College, and online
- Writing resources and asynchronous paper submission available in D2L ASC Writing Center (located in the "Discover" tab)
- Supplemental Instruction for various courses
- Peer Mentoring program

Drop-in Tutoring for Math, Science, and Writing are available during regular operating hours and Tutoring by Appointment is available to assist with a variety of specialty subjects.

- The University Campus ASC (located in the Student Union Building) and the City College ASC (located in the Tech Building) are open Monday-Friday from 9am-4pm.
- The University Campus ASC offers evenings hours Monday–Tuesday from 5pm-8 pm.
- Tutoring in the University Campus Library on Wednesdays from 5pm-8pm and Sundays from 4pm-8pm
- Extended evening and weekend tutoring support is also available online by appointment.

For more information about all ASC resources, please call 406-657-1641, email academicsupportcenter@msubillings.edu, or visit www.msubillings.edu/asc.

Statement on Academic Honesty

Link to Student handbook regarding Academic Honesty: https://www.msubillings.edu/vcsa/code_of_conduct/part_9.htm

SSS/TRIO

TRIO SSS provides support for students seeking academic development and assists students with basic college requirements by motivating students toward successful completion of their college careers. Eligible students are working toward a bachelor's degree at MSUB (or are in a 2 + 2 program through City College and MSUB) and must be low income (based upon taxable income), first generation (neither mother nor father have a bachelor's degree), or disabled (physically, mentally, emotionally). We provide free assistance, including peer mentoring, tutoring (one-on-one or group), equipment check-out, free printing and copying, access to computers, referrals to community organizations and agencies, workshops, study skills, and much more. We are accepting new students! Visit us in the Library, Room 141, call 406-657-2162, email L.gittingscarlson@msubillings.edu, or visit <http://www.msubillings.edu/sss/> to learn more.

Veterans Upward Bound

VUB is an education program that assists veterans with the process of enrolling in college and then provides support and services while they are enrolled. We are here to make the transition from soldier to student a little easier and to help veterans who are new to

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MSUB and City College connect with other student veterans on campus. We offer academic refresher classes and supplemental tutoring, help in navigating the college enrollment process, and guidance in applying for VA educational benefits and financial aid. We conduct workshops, host summer day trips, and sponsor local activities. We make referrals to help veterans connect with community resources. All of our services are free to veterans enrolled in our program and any supplies necessary are provided. VUB is located on the first floor of Cisel Hall (between the parking garage and tennis courts on North 27th) on the MSUB campus. Please stop by, check out our study areas and student/staff break room, and learn more about our services. Contact us at 406-657-2075 or visit our webpage at www.vubmt.com for complete program information.

Student Health Services

Student Health Services provides medical care, mental health counseling, wellness services and education, and violence advocacy and prevention services. Students taking 7 or more credits are automatically charged the Student Health Services fee (\$102.00 per semester). It is an optional fee for those taking less than 7 credits. Nominal fees for medical tests can be billed to the student's account. We are open M-F 8:00-5:00 at the University campus, located on the 2nd floor of Petro Hall directly above the Campus Store. At City College, we are located on the second floor of the Tech Building directly above the Academic Support Center and are open approximately 15 hours per week M-Th. Students can use Health Services even if they waive the student health insurance plan. Call us at 657-2153 or visit our website at www.msubillings.edu/studenthealth.

Title IX Reporting Policy: MSUB is committed to fostering a campus community based on respect and nonviolence; free from discrimination, gender bias, sexual harassment, and sexual assault. In accordance with Title IX, MSUB is legally obligated to investigate incidents of sexual harassment and sexual assault that occur on and off our campus. Faculty members and MSUB staff who become aware of an incident of sexual violence, including harassment, rape, sexual assault, relationship violence, or stalking, are required to notify MSUB's Title IX Coordinator. The purpose of this disclosure is to ensure that students are made aware of their reporting options and resources for support.

Students may speak to someone confidentially by contacting Student Health Services to make an appointment with a counselor at (406) 657-2153 or call the Phoenix Center Helpline at (406) 794-3829.

Native American Achievement Center

The staff helps American Indian students succeed by providing advocacy and assistance in navigating campus and community services. The Center also provides students with a Native inspired setting that serves as a home away from home. ALL students are invited to use the Parents Room for infant care and lactation. Contact Director of the NAAC, Sunny Day Real Bird at 657-2144, or stop by the Center at 2630 Normal Ave., on the west side of the Liberal Arts Building on the University campus. Interim Director Joe McGeshick is carrying out NAAC Director Duties until August 24th, 2020. He can be reached at 657-2144 and at joseph.mcgeshick@msubillings.edu