



### Course Description

This course builds upon the foundational concepts introduced in introductory econometrics and statistical courses, providing students with a deeper understanding of statistical methods and their application in quantitative analysis. The course aims to enhance students' analytical skills by delving into advanced econometric techniques, models, and their practical implementation. Students are expected to possess a decent knowledge of at least one of the major econometric software packages, such as SAS, Stata, R, Python, or Excel.

<b>Course Number &amp; Title:</b>	ABIZ 4120 – Intermediate Econometrics (A01)
<b>Number of Credit Hours:</b>	3 credit hours
<b>Class Times &amp; Days of Weeks:</b>	11.30 AM – 12.20 PM (MWF)
<b>Location of Classes:</b>	J.H. ELLIS 342
<b>Pre-Requisite:</b>	Enrollment in this course requires students to possess a sound foundation in mathematics (linear algebra and calculus), introductory econometrics, economic theory (micro and macro), and basic statistics. ABIZ 3080 or ECON 3040 is highly recommended.

### Instructor Contact Information

<b>Instructor:</b>	Bibhuti Sarker
<b>Availability:</b>	Flexible to accommodate students' schedules. Send an email for an appointment.
<b>Email:</b>	<a href="mailto:Bibhuti.Sarker@umanitoba.ca">Bibhuti.Sarker@umanitoba.ca</a>
<b>Contact Method:</b>	You can contact me over email, but the email <b>must</b> be from your U of M email address and contain <b>ABIZ 4120</b> in the subject line and your full name and student number in the text body. I will not respond to messages that lack this information.

## Textbook & Learning Materials

Jeffrey M. Wooldridge. *Introductory Econometrics: A Modern Approach*, 7th Edition, Cengage Learning. ISBN-10: 1-337-55886-9 ISBN-13: 978-1-337-55886-0

## Recommended Textbooks

- Baltagi, Badi. *Econometric analysis of panel data*. Wiley. com, 2008.
- Cameron, A. Colin and Pravin K. Trivedi, *Microeconometrics*. New York: Cambridge University Press, 2005.
- Greene, William H. *Econometric Analysis*, 7<sup>th</sup> edition. Pearson Education Inc., 2012.
- Some journal articles may be used.

## Course Evaluation Method

Test 1:	March 1	20%
Test 2:	April 5	25%
Assignments/presentations		10%
Research proposal	February 9	10%
Final paper	April 14	25%
Final paper presentations	April 8, 10	10%

## Research paper

Students are prohibited from utilizing a research paper previously submitted for another course or project.

The assigned research paper must center around an economics or agriculture topic, incorporating either micro or macro data and employing advanced techniques introduced in the course.

It is strongly recommended that students discuss their chosen topic and methodology with me in person before submitting their research proposal to ensure the selection aligns with course requirements. Given the limited timeframe of three months to complete the project, students are advised to choose a topic with which they are familiar or possess a strong interest.

**I strongly advise that you start looking for data and topics as soon as possible.**

## Research project timeline

### 1. **Project Proposal:** should be submitted to UMLEARN by **February 9<sup>th</sup> – 11:59 PM.**

A maximum two-page, (not counting the list of references), single-spaced document in PDF format outlining the research project which must include:

- Title of project
- Background (brief literature review), motivation, and research question(s)
- Description of data source, sample, and variables that will be used
- Econometric methodology
- A statement of expected results
- List of References (outside the two-page restriction)

The literature review should refer to at least 10 published journal articles.

To guarantee the feasibility of your project, your proposal should demonstrate that you have access to the data source(s), sample size is adequate, and key variables are present. Preliminary data work is a bonus.

### 2. **Presentation of Final Results (April 8, 10)**

- The presentation will be a maximum of 10 minutes long and must include slides.
- You should clearly describe and motivate the research question, briefly talk about the data source, sample, and methodology, and explain your findings.

### 3. **Final Paper** should be submitted by **April 14<sup>th</sup> (by 11:59 PM)**

- Your paper should be formatted to look like an academic paper. It should read like an academic paper.
- Tables will not be cut-and-paste from statistical software (e.g., R) into the final document. They should be formatted.
- If you include a table, it should (almost always) be discussed in the text. If you do not discuss it, it probably is not relevant and should be removed. It is not a competition about who can generate the most tables/figures. Your paper communicates information to the reader, and it should not be cluttered with useless numbers/figures.
- Please attach the R-script(s) that generate your sample and results as a part of an Appendix.
- The final paper will be evaluated based on format, writing<sup>1</sup>, contribution to the literature, difficulty of the methodology, and the extent to which it accomplishes objectives outlined in the research proposal.
  - You are expected to strictly follow the Author guidelines of Canadian Public Policy
  - see <https://www.utpjournals.press/journals/cpp/journal/authors> under **Format for Submissions**, ignore any instructions related to French.

---

<sup>1</sup> Academic Learning Center (<http://umanitoba.ca/student/academiclearning/>) provides many services to improve your writing. I strongly advise you to contact them if you feel that you require assistance.

- **Late submissions will not be accepted.**
- All R-scripts should be uploaded to UMLEARN separately
- You do not have to upload any data files. However, I may ask you to send me your data at a later date while I am grading your papers

**Note:** You are prohibited from seeking assistance from any AI tools throughout your research project. All submitted work will undergo thorough scrutiny, and any instances of suspicious activity will be subject to the university's plagiarism and cheating policies. AI tools may only be utilized for grammatical corrections.

### **Presentations**

There will be weekly presentations on published papers that use econometric methodologies introduced in the lecture. I will assign the articles one week prior to the presentation. Although a particular student will present the paper, all students will have to read it before coming to class.

### **Class participation**

Students are expected to actively participate in class as this practice enriches the course, benefiting yourself, other students, and me. I may use this in borderline cases (the quality of your classroom comments as the tiebreaker).

### **Tentative course outline**

- Introduction to data type: cross-sectional, time-series, and panel (Chapter 1)
- The review of least squares regression with cross-sectional data (Chapters 2, 3, 4, 5)

#### **Articles:**

Human Capital on GDP: A Cross-sectional Analysis. *International Journal of Engineering Business Management*, 5, 46. <https://doi.org/10.5772/56922>

Huet, C., Ford, J. D., Edge, V. L., Shirley, J., King, N., & Harper, S. L. (2017). Food insecurity and food consumption by season in households with children in an Arctic city: a cross-sectional study. *BMC Public Health*, 17(1), 578. <https://doi.org/10.1186/s12889-017-4393-6>

Natamba, B. K., Mehta, S., Achan, J., Stoltzfus, R. J., Griffiths, J. K., & Young, S. L. (2017). The association between food insecurity and depressive symptoms severity among pregnant women differs by social support category: a cross-sectional study. *Maternal & Child Nutrition*, 13(3). <https://doi.org/10.1111/mcn.12351>

- Time series econometrics (chapters 10, 11)

**Articles:**

Aik, J., Heywood, A. E., Newall, A. T., Ng, L.-C., Kirk, M. D., & Turner, R. (2018). Climate variability and salmonellosis in Singapore – A time series analysis. *Science of The Total Environment*, 639, 1261–1267. <https://doi.org/10.1016/j.scitotenv.2018.05.254>

Donkor, E., Onakuse, S., Bogue, J., & de Los Rios Carmenado, I. (2017). The impact of the presidential cassava initiative on cassava productivity in Nigeria: Implication for sustainable food supply and food security. *Cogent Food & Agriculture*, 3(1), 1368857. <https://doi.org/10.1080/23311932.2017.1368857>

Droms, W. G., & Walker, D. A. (1996). Mutual fund investment performance. *The Quarterly Review of Economics and Finance*, 36(3), 347–363. [https://doi.org/10.1016/S1062-9769\(96\)90020-4](https://doi.org/10.1016/S1062-9769(96)90020-4)

- Problems in model estimation—serial correlation and heterogeneity (Chapter 12)

**Articles:**

Cragg, J. G. (1982). Estimation and testing in time-series regression models with heteroscedastic disturbances. *Journal of Econometrics*, 20(1), 135–157. [https://doi.org/10.1016/0304-4076\(82\)90106-3](https://doi.org/10.1016/0304-4076(82)90106-3)

King, M. L. (2003). Serial Correlation. In *A Companion to Theoretical Econometrics* (pp. 62–81). Wiley. <https://doi.org/10.1002/9780470996249.ch4>

Nakamura, A., & Nakamura, M. (1978). On the impact of the tests for serial correlation upon the test of significance for the regression coefficient. *Journal of Econometrics*, 7(2), 199–210. [https://doi.org/10.1016/0304-4076\(78\)90069-6](https://doi.org/10.1016/0304-4076(78)90069-6)

Rho, Y., & Shao, X. (2015). Inference for Time Series Regression Models With Weakly Dependent and Heteroscedastic Errors. *Journal of Business & Economic Statistics*, 33(3), 444–457. <https://doi.org/10.1080/07350015.2014.962698>

- Other time series topics—unit roots, cointegration (chapter 18)

**Articles:**

Canarella, G., Miller, S., & Pollard, S. (2012). Unit Roots and Structural Change. *Urban Studies*, 49(4), 757–776. <https://doi.org/10.1177/0042098011404935>

Dutta, C. B., Haider, M. Z., & Das, D. K. (2017). Dynamics of Economic Growth, Investment and Trade Openness: Evidence from Bangladesh. *South Asian Journal of Macroeconomics and Public Finance*, 6(1), 82–104. <https://doi.org/10.1177/2277978717695150>

Glynn, J., Perera, N., & Verma, R. (2007). Unit root tests and structural breaks: a survey with applications. *Journal of Quantitative Methods for Economics and Business Administration*, 3(1).

Rousseau, P. L., & Vuthipadadorn, D. (2005). Finance, investment, and growth: Time series evidence from 10 Asian economies. *Journal of Macroeconomics*, 27(1), 87–106.

<https://doi.org/10.1016/j.jmacro.2003.09.004>

Sarker, B., & Khan, F. (2020). Nexus between foreign direct investment and economic growth in Bangladesh: an augmented autoregressive distributed lag bounds testing approach. *Financial Innovation*, 6(1), 10. <https://doi.org/10.1186/s40854-019-0164-y>

Temiz, D., & Gökmen, A. (2014). FDI inflow as an international business operation by MNCs and economic growth: An empirical study on Turkey. *International Business Review*, 23(1), 145–154.

<https://doi.org/10.1016/j.ibusrev.2013.03.003>

- Panel data econometrics (chapters 13, 14)

#### **Articles:**

Demeke, A. B., Keil, A., & Zeller, M. (2011). Using panel data to estimate the effect of rainfall shocks on smallholders food security and vulnerability in rural Ethiopia. *Climatic Change*, 108(1–2), 185–206. <https://doi.org/10.1007/s10584-010-9994-3>

Lončar, D., Paunković, J., Jovanović, V., & Krstić, V. (2019). Environmental and social responsibility of companies cross EU countries – Panel data analysis. *Science of The Total Environment*, 657, 287–296. <https://doi.org/10.1016/j.scitotenv.2018.11.482>

Sarker, B., & Serieux, J. (2022). Foreign-invested and domestic firm attributes and spillover effects: Evidence from Brazil. *Journal of Multinational Financial Management*, 63(March), 100719. <https://doi.org/10.1016/j.mulfin.2021.100719>

Tiwari, A. K., & Mutascu, M. (2011). Economic Growth and FDI in Asia: A Panel-Data Approach. *Economic Analysis and Policy*, 41(2), 173–187. [https://doi.org/10.1016/S0313-5926\(11\)50018-9](https://doi.org/10.1016/S0313-5926(11)50018-9)

HÜBLER, M., & KELLER, A. (2010). Energy savings via FDI? Empirical evidence from developing countries. *Environment and Development Economics*, 15(1), 59–80.

<https://doi.org/10.1017/S1355770X09990088>

- Instrumental variables (chapter 15)

#### **Articles:**

Angrist, J. D. (1990). Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records. *The American Economic Review*, 80(3), 313–336.

Blundell, R., & Dias, M. C. (2002). Alternative approaches to evaluation in empirical microeconomics. *Portuguese Economic Journal*, 1(2), 91–115. <https://doi.org/10.1007/s10258-002-0010-3>

Card, D. (2009). Immigration and Inequality. *American Economic Review*, 99(2), 1–21.

<https://doi.org/10.1257/aer.99.2.1>

Angrist, J. D., & Krueger, A. B. (1991). Does Compulsory School Attendance Affect Schooling and Earnings? *The Quarterly Journal of Economics*, 106(4), 979–1014.  
<https://doi.org/10.2307/2937954>

- Limited dependent variable models (chapter 17)

**Articles:**

Evans, W. N., & Schwab, R. M. (1995). Finishing High School and Starting College: Do Catholic Schools Make a Difference? *The Quarterly Journal of Economics*, 110(4), 941–974.  
<https://doi.org/10.2307/2946645>

Horowitz, J. L., & Savin, N. (2001). Binary Response Models: Logits, Probits and Semiparametrics. *Journal of Economic Perspectives*, 15(4), 43–56.  
<https://doi.org/10.1257/jep.15.4.43>

Osili, U. O., & Xie, J. (2009). Do Immigrants and Their Children Free Ride More Than Natives? *American Economic Review*, 99(2), 28–34. <https://doi.org/10.1257/aer.99.2.28>

Sarker, B., & Serieux, J. (2023). Multilevel determinants of FDI: A regional comparative analysis. *Economic Systems*, 47(3), 101095. <https://doi.org/10.1016/j.ecosys.2023.101095>

- Empirical projects (chapter 19)

**Grading**

Letter Grade	Out of 100	Grade Point Range	Final Grade Point
A+	93-100	4.25-4.5	4.5
A	83-92.99	3.75-4.24	4.0
B+	75-82.99	3.25-3.74	3.5
B	70-74.99	2.75-3.24	3.0
C+	65-69.99	2.25-2.74	2.5
C	60-64.99	2.0-2.24	2.0
D	50-59.99	Less than 2.0	1.0
F	Less than 50		0

**Additional Remarks**

I reserve the right to alter the grade conversion if doing so may help certain students. By this term's voluntary withdrawal date of Wednesday, March 20, an evaluation report will be given. Students must file an informal or formal appeal within ten working days of receiving their mark for any term work (including tests, assignments, and final exams). The department must approve all final grades.

**Policy on Make-up Exams:** Students will not be permitted to write make-up tests or hand in any component of their research project late except for documented medical or compassionate reasons. If you miss test 1, the grade will be transferred to test 2 if an appropriate document is provided. But you are not allowed to miss both tests.

**Academic Dishonesty:** All term work should be completed **independently**. It is my sincere hope that no student in this class will cheat or plagiarize. However, if you do so, this will be taken seriously and you will be punished according to the university rules. Hence, students should acquaint themselves with the University's policy on plagiarism, cheating, and examination impersonation (see p. 26 of the 06-07 University of Manitoba Undergraduate Calendar).

### **Discussion forum**

You are encouraged to post any questions about course content in the appropriate discussion forum within the UM Learn site. Anyone can post in the forums, and anyone can respond to forum posts.

- Post your questions in the “Content questions” forum (example: Could someone explain this?).
- I will be available between 10.00 PM and 11.00 PM from Monday to Friday to answer questions on the discussion forum.

### **Expectation**

I will treat all students equally and with courtesy and respect. I expect the same from the students. I will try to make the class environment stimulating and make myself available to the students to the maximum extent that I think is reasonable. Moreover, students can learn more by interacting with each other.

### **Using Copyrighted Material**

Copyrighted material is part of the content of this course. The instructor has ensured that content is appropriately acknowledged and copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by the instructor, are made available for private study and research and must not be distributed in any format without permission or uploaded to any learning management system (such as UM Learn), or any website, unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact [um\\_copyright@umanitoba.ca](mailto:um_copyright@umanitoba.ca).

### **Technology and Course Material**

The instructor and the University of Manitoba hold copyright over the presentation slides, lectures, and other course materials that form part of this course.

- You cannot take pictures, videos, or audio recordings during lectures without the instructor's prior permission (Bibhuti Sarker).
- Lecture slides and other course materials should be solely used for the participant's private study and research.

### **Academic Integrity**

Students should acquaint themselves with the University's policy on plagiarism, cheating, examination impersonation, (“Personation at Examinations” (Section 5.2.9) and “Plagiarism and Cheating” (Section 8.1)) and duplicate submission by reading the documentation provided at the Arts Student Resources



web site at <http://www.umanitoba.ca/faculties/arts/student/index.html>. Ignorance of the regulations and policies regarding academic integrity is not a valid excuse for violating them.

*(a) Plagiarism – the presentation or use of information, ideas, images, sentences, findings, etc. as one’s own without appropriate citation in a written assignment, test, or final examination.*

*(b) Cheating on Quizzes, Tests, or Final Examinations – circumventing fair testing procedures or contravention of exam regulations. Such acts may be premeditated/planned or may be unintentional or opportunistic.*

*(c) Personation – writing an assignment, lab, test, or examination for another student, or the unauthorized use of another person’s signature or identification to impersonate someone else. Personation includes both the personator and the person initiating the personation.*

*(d) Academic Fraud – falsification of data or official documents as well as the falsification of medical or compassionate circumstances/documentation to gain accommodations to complete assignments, tests, or examinations.*

### **Student Accessibility Services**

If you are a student with a disability, please contact SAS for academic accommodation support and services such as note-taking, interpreting, assistive technology, and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation. *Student Accessibility Services* <http://umanitoba.ca/student/saa/accessibility/>

520 University Centre

204 474 7423

[Student\\_accessibility@umanitoba.ca](mailto:Student_accessibility@umanitoba.ca)