# Component Area Option (a): Mathematics/Reasoning - ECON - 2370

**UGRD Course - REVISE existing Core Course <or> Revise existing non-core course to ADD to Core**

## General Information

**Please use this form to:**

- **REVISE** a course that is already on the Core course list.
- **ADD** to the Core course list an existing permanent course that is not already on the Core course list

## Step One: Turn on Help Text.

**Please click on the icon of the 'i' within a blue circle to 'Show Help Text'. It is located at the top-right of this pane within the proposal form.**

### Course Ownership

**Department*** **Department of Economics**

**Does the department chosen use a Department Curriculum Committee?*** * Yes / No

**Does the college of the department chosen use a College Curriculum Committee?*** * Yes / No

**Faculty Contact Person*** Ruxandra Boul

**Telephone*** 7137433836

**Email*** rprodan@uh.edu

**Will the course be cross-listed with another area?*** Yes / * No

**If "Yes", please enter the cross-listed course information (Prefix Code Title)**

### Implementation

**Academic Year to begin offering course:*** * 2015 / 2016 / 2017

**Term(s) Course will be TYPICALLY Offered:***

- ☑ Fall (including all sessions within term)
- ☑ Spring (including Winter Mini all sessions within term
- ☑ Summer (including Summer Mini and all sessions within term)

## Justification for adding/changing course

**Justification(s) for Adding Course*** **Department of Economics**

## Importing course information for revising existing Core course

You may **IMPORT** the existing catalog information by doing the following:

- Select the blue downward-sweeping arrow located at the top-left of this form to search for automatically import this information into the proposal fields below
- When a pop-up window opens, select the appropriate undergraduate catalog from which to import information.
- Select the drop-down "Filter by field" menu to select the **Prefix** (you know this as Rubric) and enter the existing course prefix into the field that appears.
- Repeat the process to add another field filter and select the **Code** (you know this as the Course Number) field and enter the existing course number into the field that appears.
- After fields are selected and populated, click the "Search Available Curriculum" option. The search result(s) will appear at the bottom of the same window.
- Click the appropriate course to select.
- The next view will be to choose the data you want to import into the proposal. Please select all available fields (default selection is all).
- Finally, click "Import This Item" to enter the existing course data of the academic catalog into your proposal. The pop-up window will automatically close and return you to your proposal.

*Please note that not all data, such as CIP code, Grade Options, Short Course Title) that has been previously provided when developing a course has historically been stored in the academic catalog. Moving forward this data will be stored and will load into your proposal when importing data from the catalog. Thank you for your patience as we build a better system for you.*

Once you import the existing catalog data, do NOT make changes to the existing information yet.

Please complete the remaining empty required fields and launch your proposal. You will be the first step (next step) in the approval process. At that time you will make

changes to the existing information imported from the catalog and the system will track all changes proposed (by all approvers) so that changes can be easily seen by variation of font color.

**Instructional Area/Course Prefix*** ECON

**Course Number*** 2370

**Long Course Title*** Introduction to Economic Data Analysis

**Short Course Title*** Intro to Econ Data Analysis

## Instruction Type and Student Contact Hours

**Instruction Type*** **Lecture ONLY**

### Contact Hours

**Student Contact Hours are determined by a number of factors, including instruction type, and are used to determine the accuracy of credit hours earned by accrediting agencies and THECB. Please contact your college resource for assistance with this information.**

**Student Contact Hours must match the instruction type.**
**Eg: If Lecture ONLY, then Student Contact Hours for Lab must be zero.**
**Eg: If Lab ONLY, then Student Contact Hours for Lecture must be zero.**

**Lecture** 3 **Lab** 0

## Grade Options

**Grade Option*** **Letter (A, B, C.....)**

## Course Repeatability

**Can this course be repeated for credit?*** ○ Yes ○ No

**If Yes, how often and/or under what conditions may the course be repeated?**

**CIP Code**

**The CIP Code is used by the university and the THECB to determine funding allocated to the course, which means that selecting the most helpful valid code may have an effect on your course.**

**If assistance is needed with code selection, please contact your college resource.**

**CIP Code Directory:** http://www.txhighereddata.org/Interactive/CIP/

CIP Code must use this format:
##.####.## ##
digit digit period digit digit digit digit period digit digit space digit digit

**CIP Code*** 45.0603.00 01

## Catalog Descriptions

**Prerequisite(s):*** completion of MATH 1310 or equivalent or consent of instructor.

**Corequisite(s)**

**Course Description*** Introduction to basic concepts in statistics with strong emphasis on the application of statistical methods to the analysis and interpretation of economic data. Topics include descriptive statistics, sampling theory, confidence interval, hypothesis testing, and simple linear regression analysis. Students will also learn how to carry out statistical analysis in spreadsheet programs like Excel.

**Course Notes**

## Authorized Degree Program(s)

If this proposal is a change to an existing course (Core or non-Core), there may be impacts for other courses (ex: using this course as a prerequisite) or programs (incorporating the course into the degree plan, whether required or as an option) that have some dependency on this course.
If this is a change to an existing course, before continuing with this proposal please do the following:

- Navigate to the Reports tab at the top of the window.
- Locate and select "Impact Report"
- Enter the course **prefix** (you know this as the Rubric) and **code** (you know this as the Course Number) into the appropriate fields. EX: ACCT 1301
- Select the external system (catalog) to search for course dependencies.
- When the report is complete there will be a pop-up window with your results. Copy and Paste those results into the field below.
- For courses that may be used in both the Undergraduate and Graduate catalogs, please paste the results from both searches.

Please note: Text is automatically saved as you enter information. When navigating away from this page, you do not need to press a "save" button (as none exists). When you return to this proposal, you will be able to resume where you left off.

**Impact Report ***

# Impact Report for econ 2370

| | |
|---|---|
| **Prerequisite:** | ECON 3347 - Capital Market Economics |
| | ECON 4349 - Introduction to Game Theory |
| | ECON 4364 - Introduction to Experimental Economics |
| | ECON 4365 - Introduction To Econometrics |
| | PSYC 4352 - Human Memory |
| **Programs** | III. Institutionally Designated Option: Mathematics/Reasoning |

| | |
|---|---|
| | Quantitative Social Science Minor |

## Core Curriculum Information

**For additional guidance when developing course curriculum that will also meet the Core Curriculum requirements, please refer to the Undergraduate Committee website for Core Curriculum:**

http://www.uh.edu/undergraduate-committee/doc_2014-core-review.html

**Therein you will find a chart for the required and optional competencies based on the Core Component Area (Core Category) selected.**

**Component Area for which the course is being proposed (select one)**

**Component Area Option (a): Mathematics/Reasoning**

**List the student learning outcomes for the course***

1) to introduce students to the fundamental concepts of statistical analysis,

2) to prepare students for a next course in econometrics (statistics applied specifically to economics and finance)

3) to allow students to carry out common statistical analysis in Excel 2010 and Stata.

**Competency areas addressed by the course***

**Communication Skills**

**Critical Thinking**

**Empirical & Quantitative Skills**

**Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency selected above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency.**

**Provide (upload as attachment) detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.**

### How to upload/attach a document:

- Select the 'Files' icon at the center of this proposal screen. (Appears as a blue-outlined page with a green + symbol)
- In the 'Upload File' screen, 'Browse' to your computer and select the course syllabus.
- When syllabus file is selected, press 'Open' to return to the 'Upload File' screen.
- Press the 'Upload' button to complete the process of adding your syllabus file to the proposal.
- Proceed with remaining steps.

**Critical Thinking, if applicable**

Assignment attached.

In order to evaluate their critical thinking competency we will measure the following:

1. The student's ability to use economic theory in order to assess the appropriate economic factors.
2. The student's ability to interpret results of quantitative information.

**Communication Skills, if applicable**

Assignment attached.

Students will demonstrate their ability to communicate effectively.We will measure the student's demonstration of organized thought and ability to communicate clearly through writing.

**Empirical & Quantitative Skills, if applicable**

Assignment attached.

Students will demonstrate their empirical and quantitative competency. We will measure the following:

1. The student's ability to formulate a statistical model.
2. The student's ability to analyze quantitative data using methods and tools used by statisticians.

**Teamwork, if applicable**

**Social Responsibility, if applicable**

**Personal Responsibility, if applicable**

**Syllabus**

**Syllabus*** ✓ Syllabus Attached

**Will the syllabus vary across multiple section of the course?** Yes No

**If yes, list the assignments that will be constant across sections**

**Important information regarding Core course effectiveness evaluation:**

**Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.**

**The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.**

## Additional Information Regarding This Proposal

**Please use the text box below to include any additional information pertinent to this proposal.**

**Comments:** This request is a change in course title.
Change title to: "Introduction to Economic Data Analysis
Former title: "Introduction to Statistics and Data Analysis"
- the course will be required for all Econ majors

Nore: "The justification for adding/changing the course" tab was not available when this form was completed.

→ No substantive changes have been made.

**Proposal Completed?**

Scroll back to the top of this pane and click to right-directional triangle" " located at the top-left of this pane to LAUNCH your proposal.

If any required fields are incomplete, the form will highlight the required fields with a contrasting orange font color. Complete the required fields and again click the "" to LAUNCH your proposal.

As originator, you will be the first approval step, allowing you to make changes to existing text and information. Changes made by any user will be tracked so that all viewers can discern suggestions to changes by person.

UNIVERSITY OF HOUSTON
DEPARTMENT OF ECONOMICS

# ECON 2370: INTRODUCTION TO STATISTICS AND DATA ANALYSIS
## SUMMER 2014

(Subject to Change)

**ISTRUCTOR:** Natalia A Zhivan, Ph.D., nazhivan@uh.edu (when sending emails, please include the text "ECON 2370" in the Subject line of your message)

**TA:** Randall Crouch. Office: 250M McElhinney. Office hours: Wend. 1pm – 2pm or by appointment. Email: rwcrouch@uh.edu.

**CLASS TIME:** 10AM – 12PM

**LOCATION:** M 118

**OFFICE HOURS:** Mo&We 9:00 AM – 9:45 AM or by appointment. Office: 209C McElhinney Hall. Feel free to stop by when you see me in my office.

**TEXTBOOK:** "Statistics for Business and Economics" by Anderson, Sweeney, Williams, Camm, Cochran, 12 ed.

**SOFTWARE:** Microsoft Excel, Stata 10 or higher (optional)

**PREREQUISITES:** Completion of MATH 1310 or equivalent or consent of instructor.

## COURSE DESCRIPTION

This course is designed to introduce students to basic concepts in probability and statistics with strong emphasis on the application of statistical methods to the analysis and interpretation of economic data. Topics include an overview of different study designs, descriptive statistics, probability theory (events, simple probability, joint probability, conditional probability, Bayes' Theorem), probability distributions, sampling theory, confidence interval, hypothesis testing, and simple linear regression analysis. In this course, students will be introduced to computerized statistical packages, such as Excel and Stata. No prior knowledge of probability and statistics is required; however, students must be familiar with basic algebra.

## GRADING

- In-class un-announced quizzes (extra credit)
- In-class assignments (10%)
- In-class Final Excel assignment (10%)
- Homework assignments (20%)
- Exam 1 (30%)
- Exam 2 (30%)
- Final Exam is to replace lowest grade for Exams 1 or 2

## PROBLEM SETS

- Students are allowed to work in groups of 2 on problem sets; however, all write-ups must be done individually. If two or more identical assignments are submitted, failing grade for that assignment will be given to the students submitting identical assignments.
- You must turn in the **completed** problem set (**hard copies only**) at the beginning of the class at 10 am. Any problem set submitted after the start of the class will be subject to 10 point penalty. Any problem set submitted after the class before the end of the day will be subject to 30 point penalty. Every additional day after the due date will result in additional 30 point penalty, that is, penalty=number of days*30. **No electronic submissions will be accepted.**
- If an assignment requires work on Excel, all Excel files should be send by 10 am before the class starts to Randall at rwcrouch@uh.edu. Please include the text "ECON 2370" in the Subject line of your message. Name your Excel files with your name and an assignment number.

## EXAMS

- Note that Exams 1 and 2 are mandatory, Final Exam is optional.
- Make up exams will be permitted with physician excuses only.

## LECTURE MATERIALS

I will distribute or post lecture outlines before the class starts. I would encourage all students to take notes in class since I will add materials from sources other than the main text book.

## CLASS PARTICIPATION

Attendance is mandatory. I will be distributing attendance sheet at the beginning of each class. Missing 50% or more lectures will result in **1% grade penalty**. Your attendance will be critical in determining your final grade particularly for those students that are less than 1 point away from the next grade level. Based on your attendance and trend in your class performance, students may get a next level grade (e.g., "B" to "B+") except for an "A" level students.

## TEHNOLOGY IN THE CLASSROOM

- Laptops can be used for class purposes only with instructor's approval.
- Simple calculators are required for the class.
- **Students are not allowed to check their emails, news, Facebook, etc. The use of tablets and smartphones is prohibited in class.**
- Unauthorized use of the technology will lead to **1% grade penalty**.

## HONOR CODE

I take UH Academic Honesty Policy very seriously. Any students who are suspected (with reasonable evidence) of cheating or who are found to have plagiarized or misrepresented their work will be given a failing grade for the task. In this course, such actions will likely earn the student a failing grade for the course. Remember, the integrity and reputation of your own work depends on the honesty of the entire

UH academic community. For the complete UH Academic Honesty Policy please see http://www.uh.edu/academics/catalog/policies/academ-reg/academic-honesty/.

The following definitions may be of interest:

- ***Cheating*** *-Unauthorized giving, receiving, or use of material or information in academic assignments, or the attempt to do so.*
- ***Plagiarism*** *- Use of ideas, data or specific passages of another person's work that is unacknowledged or falsely acknowledged. Any paraphrasing or quotation must be appropriately acknowledged.*
- ***Misrepresentation*** *- Performance of an academic assignment on behalf of another student.*
- ***Falsification of Academic Records*** *Forging the signature of either an instructor or advisor on registration, course waiver, capstone, or change of grade forms.*

## COURSE OUTLINE

- Introduction
- Excel and Stata Overview
- Study designs
- Descriptive Statistics
- Introduction to Probability
- Discrete Probability Distribution
- Continuous Probability Distribution
- Sampling and Sampling Distribution
- Interval Estimation
- Hypothesis Testing
- Simple Linear Regression

## IMPORTANT DATES:

| Date | Event |
|---|---|
| Mon., June 9, 2014 | Problem Set 1 is due |
| Mon., June 16, 2014 | Problem Set 2 is due |
| Mon., June 16, 2014 | Review Session |
| **Tue., June 17, 2014** | **Exam 1** |
| Thur., June 26, 2014 | Problem Set 3 is due |
| Mon., June 30, 2014 | Problem Set 4 is due |
| **Tue., July 1, 2014** | **In-class Final Excel assignment** |
| Wed., July 2, 2014 | Review session |
| **Thur., July 3, 2014** | **Exam 2** |
| **Tue., July 8, 2014 at 11 am** | **Final Exam** |

University of Houston
Department of Economics

# ECON 2370: Intro to Statistics and Data Analysis

Summer 2014

## EXCEL Assignment #1

(Total: 100 points)

Students can discuss their assignment with each other, however, all the analysis and writing must be done independently. Email your EXCEL file and Microsoft Word document to your TA, Randall, at rwcrouch@uh.edu. Name your files with your name, for example, "ECON2370_natalia_zhivan.doc".

**Due: June26th, 2014 by the end of the day.** There will be at least 10 point penalty for being late depending on amount of time past due date.

**********

**Objective:** The objective of this assignment is for students 1) to learn how to use EXCEL, 2) utilize your knowledge of descriptive statics to tell a story, and 3) learn how to present their finding to the general audience.

**Data**: Students can choose one of the following three options to write a report:

- Students can pick their own data that is relevant to their interest;
- Students can also choose one of the Case Problems 1, 2, 3, or 4 at the end of the Chapter 3 in the textbook: "Pelican Stores," "Motion Picture Industry," "Business Schools of Asia-Pacific," or "Heavenly Chocolates Website Transactions". Data is posted on the Blackboard.
- Students can also use the file provided "excel_ps_1.xls" provided on the Blackboard about earnings taken from the CPS.

Each file provided on the Blackboard is self-explanatory and has labels that describe each variable. If you are unclear about some of the variables feel free to email me with questions.

**Content of the report**: Whether you use your own data or data provided on the Blackboard, "tell an interesting story" based on the data. For example, for those using "excel_ps_1.xls", you can talk about average earnings in the economy, distribution of earnings, whether there are outliers present, whether earnings are related to hours worked, whether there are gender differences in earnings, etc. You do not have to talk about all the facts; however, each report must have the following components:

- Mean (if continuous or dummy), median (if continuous), standard deviation (if continuous), frequencies (if categorical) of all variables.
- Histogram of a continuous variable, e.g. earnings. Is it skewed?
- Cross-tabulation of two variables, e.g. earnings and college dummy
- Bar chart, e.g. earnings by college. Are their differences in average/median earnings by college dummy?

- Correlation, e.g. hours worked and earnings
- Scatter diagram and trendline, e.g. hours worked and earnings
- Each student MUST use pivot tables in Excel.

**Format**: Your report excluding tables and graphs should be no longer than 2 page with font 12 and spacing 1.15. Each report must contain a short title and a student name. Text must be followed by Tables and Figures. Each table and figure must have a title that describes its content.

**Grading**: Grading of the assignment will be based on your ability to analyze data using EXCEL, use of appropriate terminology and concept learned in class, and your ability to communicate your findings. Pretend that you are writing this report to your boss and your job depends on it. Top 3 students will get 5 extra credit points.

**GOOD LUCK!**