485-01-02 Computer Applications in Finance

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Xavier University

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FINC 485: Computer Applications in Finance  
Department of Finance  
Xavier University  
Fall 2016

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Office hours: TR 1:00-2:30. Additional times by appointment.

College Mission  
We educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition.

Course Description  
The course is designed to develop the students' ability to integrate an electronic spreadsheet into the identification, analysis and solution stages of financial problems. Through this course, students will gain a conceptual as well as a practical understanding of spreadsheets and will be equipped with the spreadsheet skills needed to engage in economic financial modeling.

Learning Outcomes:
Upon successful completion of this class, you will be able to  
- Apply a financial spreadsheet to a wide variety of financial models;  
- Generate using excel a set of pro forma financial statements for a business;  
- Use simple excel database commands such as vlookup, hlookup, offset, index, and match;  
- Use excel finance functions including pv, fv, NPV, IRR, yield, and price; and  
- Apply various excel add-ins to financial problems, including solver, goal seek and @RISK.

Course Prerequisite: Grade of B- or better in FINC 300.

Method  
This class meets twice a week on a Tuesday - Thursday schedule. Some time will be spent each period reviewing or learning the financial or statistical technique that will be modeled using excel. Some days you will have time to work in class on the models and assignments that are due that week. However, the assignments are primarily homework. You are expected to come to class prepared, having read all relevant materials and having at least attempted the day’s spreadsheet assignment. You are also expected to participate in class discussions.
Course Materials

1. **Required Supplement:** Access to FINC 300 textbook: Ross, Westerfield, and Jordan Essentials of Corporate Finance
2. **Canvas** I will use the electronic blackboard extensively throughout the semester. You are responsible for checking it regularly.

Instructor Access: My office hours are Tuesdays and Thursdays from 1:00-2:30. I am happy to meet with you during those hours or by appointment at a time that is mutually convenient. You are welcome of course to just drop by at any time.

Grades:

Your course grade will be determined by your class attendance and participation, performance on homework assignments, and performance on two examinations. The weights will be assigned as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and Participation</td>
<td>10</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>10</td>
</tr>
<tr>
<td>Mid-term Exam</td>
<td>40</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40</td>
</tr>
</tbody>
</table>

Homework Assignment Policies:

Homework assignments up to one week late will receive partial credit.

It is a requirement that you complete all of the homework assignments before the last day of regular class. *If you have not turned in all assignments before the last day of regularly scheduled classes you will receive an F for the course.*

You may work in **groups of two or more**. All group member names should be included in the filename and your working e-mails should be on the first tab of each workbook. All group members are to submit the assignment.

File Naming Convention – The spreadsheets that you submit must be named appropriately to receive credit. The file naming convention is

*A#LastnameLastnameLastnameContent.xls* where A refers to the assignment, # is the actual number (i.e. 1) followed by the last names of all of the group members and Content helps you remember what the assignment covered. For example if you are submitting assignment #1 name it as: A1SmithJonesGonzalesHockeyAssignment.xls

**If you do not name the file this way you will not receive credit.**
Attendance:  
Attendance, participation, and cooperation are important elements in improving financial literacy. Class attendance is mandatory. You may have one free absence. You will lose 5 points out of 100 course points for every unexcused absence. Excused absences must be approved in advance and be supported by outside documentation. Telling me that you will be absent does not constitute an excused absence. Without documentation and a request for an excuse, you may not be excused.

EXAMS  
The two exams will be individual exams. During each exam, you will be asked to demonstrate your knowledge of financial applications as well as your spreadsheet skills. The exams are open-book and open-notes.

Makeup Exams:  
Makeup exams will be given only to students who receive permission from me in advance of the test date. Students will be required to provide documentation regarding excused absences.

Practice Problems and Quizzes  
I will give you plenty of practice sets and quizzes throughout the semester. Often they find their way onto midterms and final exams. Occasionally I will give a practice set to be done in class. If you do not work on it during class you will be marked as absent that day.

Self-Direction Aspect of the Class  
Some of you have strong finance skills. Some have strong Excel skills. Some have taken most of the Finance courses offered at Xavier while others have not. I will cover a wide variety of finance problems in a computing setting but will not always go into a lot of detail while covering the material. You are responsible for figuring out what you need to work on. It may be that you need to spend more time reading finance textbooks and supplemental readings or you may need to spend more time with an Excel handbook and Excel help menu or you may need to ask me more questions. Due to the wide variety of skills in the class I rely on you to determine what you need help on and will be glad to deliver it. That is why I devote a lot of time to lab time, question time and keep office hours.

Academic Misconduct  
Xavier’s policy regarding academic misconduct may be found here:

http://www.xu.edu/registrar/ugrd_policies.html#Academic honesty
Miscellaneous Notes:

Although the only finance prerequisite for this course in FINC 300, the more finance, and accounting courses you’ve had, the more you will get out of the class. If you have had additional courses, I ask that you share your expertise with your classmates by assisting them with concepts and problems.

The recommended study/working time for this course is six (6) hours per week outside of class. Simply completing the course assignments will not guarantee you a good grade. **You will have to demonstrate your knowledge on exams.** That means reviewing, trying the techniques in other settings, brushing up on your finance knowledge and working through suggested exercises and practice sets. If you are unable or unwilling to make this sort of time commitment to this course, I recommend that you withdraw and take the class another time. Computer skills cannot be acquired by reading through assignments, watching someone else do them, or by cramming the night before an exam. You will learn by doing, and that will take time.

One of your goals for this class should be to improve your finance and spreadsheet skills beyond your current abilities. Some of you are very familiar with spreadsheets while others are not as familiar. Regardless of your current level of skill, use this course as an opportunity to get better at using spreadsheets.

You will be expected to ask questions during class. An absence of questions will be taken as a sign of complete understanding. Take an active role in your education. If you do not understand how to do something, it’s up to you to take steps to remedy the situation.

Course Outline

The outline below is a rough outline of the semester. It is only an approximation and is subject to change.

Assignment Due Dates:

**All assignments are due at midnight on Thursday unless otherwise noted.** For assignment details see Canvas.
<table>
<thead>
<tr>
<th>Week #</th>
<th>Week Beginning</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/11</td>
<td>A1 Descriptive Stats - due by Friday at midnight</td>
</tr>
<tr>
<td>2</td>
<td>1/18</td>
<td>A2 Loan Amortization Calculator - due Fri by midnight</td>
</tr>
<tr>
<td>3</td>
<td>1/25</td>
<td>A3 Time Value Review</td>
</tr>
<tr>
<td>4</td>
<td>2/1</td>
<td>A4 Modeling Financial Statements</td>
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<tr>
<td>5</td>
<td>2/8</td>
<td>A5 Retirement Problem</td>
</tr>
<tr>
<td>6</td>
<td>2/15</td>
<td>A6 Stock Valuation</td>
</tr>
<tr>
<td>7</td>
<td>2/22</td>
<td>A8 Displaying Financial Information</td>
</tr>
<tr>
<td>8</td>
<td>2/29</td>
<td>A9 Regression Analysis</td>
</tr>
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<td>8</td>
<td>3/7</td>
<td>Spring Break</td>
</tr>
<tr>
<td>9</td>
<td>3/14</td>
<td>A7 Pivot Tables</td>
</tr>
<tr>
<td>10</td>
<td>3/21</td>
<td>A10 Capital Budgeting</td>
</tr>
<tr>
<td>11</td>
<td>3/28</td>
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</tr>
<tr>
<td>12</td>
<td>4/4</td>
<td>A11 Monte Carlo Simulation Using @RISK</td>
</tr>
<tr>
<td>13</td>
<td>4/11</td>
<td>A12 Portfolio Selection</td>
</tr>
<tr>
<td>14</td>
<td>4/18</td>
<td>A13 Derivatives</td>
</tr>
<tr>
<td>15</td>
<td>4/25</td>
<td>A14 Capital Rationing</td>
</tr>
</tbody>
</table>
| 16     | EXAM WEEK      | Final Exam on Thursday May 5th 8:30 – 10:20 (10:00 section 01)  
Final Exam on Tuesday May 3rd 10:30 – 12:20 (11:30 section 02) |
Finance Topic List

- Review of / introduction to Finance and Logical Functions in Excel
- Generating descriptive statistics
  - Built-in statistics functions
  - Data Analysis Toolpak
  - Autofilter and the Subtotal Function
- A Basic Financial Model – Loan Amortization
  - Spreadsheet structure
  - Building a general model
  - Blocking input errors with Data Validation
- Modeling Financial Statements
  - Preparing Pro Forma Financial Statements
  - Making a balance sheet “balance.”
  - How excel resolves circularity
- Valuing a Business
  - Forecasting free cash flow (FCFF vs. FCFE)
  - Estimating the horizon/terminal value
  - Determining enterprise value
  - Estimating the value of equity
- Charting
  - Displaying financial information through graphs
  - Choosing the right chart
- Regression Analysis
  - Simple and multiple regression
  - Determining significance
  - Regression models in forecasting.
- Capital Budgeting
  - Building a flexible model
  - Sensitivity analysis using Data Tables
- Markowitz Portfolio Selection
- Derivatives
  - Valuing puts and calls
  - Profit-loss graphs for option trading strategies
- Monte Carlo Simulation using @RISK
  - Types of simulation models
  - Modeling risk
  - Simulation in a capital budgeting setting
  - Simulating financial statements
- Miscellaneous topics (time permitting)
Excel Topics

Here are some of the topics/functions that will be woven into the class during the course of the semester.

- Logical functions (IF, AND, OR)
- Lookup functions (VLOOKUP, HLOOKUP, OFFSET, INDEX, MATCH)
- Conditional functions (COUNTIF, COUNTIFS, SUMIF, SUMIFS, etc.)
- Finance functions (various as needed)
- Subtotal function
- Array formulas
- Sorting
- Auto Filter
- Charting
- Data Tables
- Pivot Tables
- Statistics functions
- Optimization
- Macros
- Date functions
- Static and dynamic ranges
- Data validation
- Ranking and ordering
- Naming conventions
- Spreadsheet protection and safety