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485-01-02 Financial Modeling

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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 a 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 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 a set of pro forma financial statements for a business using excel;
- Use simple excel database commands such as vlookup, hlookup, offset, index, and match;
- Use excel finance functions including PV, FV, NPV, and IRR; 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>
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</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>
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</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 consult with your classmates regarding homework assignments. In fact, I encourage you to do so. Discussion of the course materials with classmates will enhance your understanding.

Approach to Learning:

This is a very hands-on class. During the semester you will be given the opportunity to learn excel at a fairly high level.

Knowing is not enough; we must apply. Willing is not enough; we must do. - *Johann Wolfgang von Goethe*

Tell me and I forget. Teach me and I remember. Involve me and I learn. - *Benjamin Franklin*

Computer skills cannot be acquired by reading through assignments, watching someone else demonstrate them, or by cramming the night before an exam. You will learn by doing, and that will take time.
Attendance:
Attendance and participation are important elements in improving financial literacy. Class attendance is mandatory. You may have one free absence. For every unexcused absence, you will lose 10 points out of 100 course points. 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. I view these exams as “recitals” in which you demonstrate your finance and 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.

Self-Direction Aspect of the Class
View this class as the opportunity to acquire and develop new technical skills. Some of you already have fairly good excel skills while for others excel is fairly new. Some of you have only taken FINC 300 while others of you have several finance courses behind you. Regardless of your preparation for this course, I challenge all of you to get better at using excel!

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.
Miscellaneous Notes (cont’d):

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>1/8</td>
<td>A1 Descriptive Stats</td>
</tr>
<tr>
<td>2</td>
<td>1/15</td>
<td>A2 Loan Amortization Calculator - due Fri by midnight</td>
</tr>
<tr>
<td>3</td>
<td>1/22</td>
<td>A3 Time Value Review</td>
</tr>
<tr>
<td>4</td>
<td>1/29</td>
<td>A4 Modeling Financial Statements</td>
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<tr>
<td>5</td>
<td>2/5</td>
<td>A5 Retirement Problem</td>
</tr>
<tr>
<td>6</td>
<td>2/12</td>
<td>A6 Stock Valuation</td>
</tr>
<tr>
<td>7</td>
<td>2/19</td>
<td>A8 Displaying Financial Information</td>
</tr>
<tr>
<td>8</td>
<td>2/26</td>
<td>A9 Regression Analysis</td>
</tr>
<tr>
<td>9</td>
<td>3/6</td>
<td>Spring Break (March 5-9)</td>
</tr>
<tr>
<td></td>
<td>3/12</td>
<td>Midterm Exam on Thursday March 15th</td>
</tr>
<tr>
<td>10</td>
<td>3/19</td>
<td>A7 Pivot Tables</td>
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<tr>
<td>11</td>
<td>3/26</td>
<td>A10 Capital Budgeting</td>
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<tr>
<td>12</td>
<td>4/2</td>
<td>A11 Monte Carlo Simulation Using @RISK</td>
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<tr>
<td>13</td>
<td>4/9</td>
<td>A12 Portfolio Selection</td>
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<td>14</td>
<td>4/16</td>
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</tr>
<tr>
<td>15</td>
<td>4/23</td>
<td>A14 Capital Rationing</td>
</tr>
<tr>
<td>16</td>
<td>EXAM WEEK</td>
<td>Final Exam on Thursday May 3rd 8:30 – 10:20 (10:00 section 01)</td>
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<td></td>
<td>Final Exam on Tuesday May 1st 10:30 – 12:20 (11:30 section 02)</td>
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</table>
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
- 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