Course Outline

Course Description:
Taxes are a crucial component of most investor’s asset allocation decision. After-tax returns are the portion investors keep. Taxes are also a crucial component of firm’s investment and financing decisions. Unfortunately, knowledge of how taxes work is often left to the experts. Most finance courses mention taxes, but the discussion is often and necessarily extremely brief and shallow. This means that many opportunities for creating value for firms and investors are missed. This course will not make you a tax expert. You will still need to hire a tax expert. Instead the objective is to teach you enough of the structure of tax codes (past, current, and future; US and non-US) so that you can ask intelligent tax, business, and finance questions before it is too late. The class is designed to fill the gap between an MBA who is well trained in finance and the tax experts that you will rely on in your career. We will first develop a set of fundamental tax and finance concepts. We will then apply these concepts to a wide range of investment, financing, and risk management applications. Although there are a large number of techniques used in practice, there are just a few fundamental ideas underlying most tax efficient investment and financing strategies. Based on prior students, this knowledge is surprisingly scarce and thus a valuable skill.

Below is a list of lecture topics and a brief description of what I expect to cover in each session. The required reading, which I expect you to do prior to coming to class, is listed after each description in italics.

Course Readings:
Cases:
“Western and Southern Enterprise Case”
“Gulf-Canada Ltd Case”
“Burlington Northern Railroad Company Case”

¹ The syllabus lists the current edition of the text books. If you have a prior edition you may use that version as long as you do the comparison between the two editions.
Week 1:

**Fundamentals of Tax Strategy (1)**

This session will describe the structure of the course. We will first discuss the purpose of the tax code in society since tax codes are more than a method for financing governments. Tax codes are also a tool of social policy. We will then discuss the logical structure of tax efficient financial decisions. If all tax rates are equal, there are no gains to tax planning (this should sound like M&M). Thus tax planning opportunities arise when tax rates differ (this should sound like M&M). Finally, we will discuss capital gains taxation. Capital gains taxation is relatively simple but the basis for a number of tax planning strategies.

*SWEMS: Chapter 2*


Week 2:

**Tax Investing Basics (2)**

This session will cover a number of tax building blocks which we will use later. Many assets are held through investment structures that can alter how they are taxed. We will examine the basic structures and how they affect the after-tax return investors earn. We will develop the concept of an effective marginal tax rate which unlike statutory tax rates accounts for the present value of tax payments. We will then apply the tax basics to understanding net operating losses (NOLS), the alternative minimum tax (AMT), and mutual fund taxation.

*SWEMS: Chapter 3 and 7 (skim)*

Week 3:

**Municipal Bonds (3)**

Municipal bonds are a fixed income asset class but unlike traditional bonds interest earned on these bonds is not taxed. After introducing you to the market, we will use the municipal bond market as a laboratory to develop the concept of implicit and explicit taxes. Explicit taxes are the taxes paid to the government. Implicit taxes are the reduction in before-tax return an investor incurs when purchasing tax-favored assets. This allows us to examine the asset allocation decision in the presence of different tax preferences. Finally, we will use the municipal bond market to examine how markets set expectations about future tax rates and their associated risk.

*SWEMS: Chapter 5*

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1 This is not a tax article, but you saw the logic (and maybe the article) in FINC431 or FINC440. The issue described will arise several times throughout this course and often in your career. Shockingly, markets are not always efficient. Since this is an issue that many of you find confusing, I think it worth reviewing. The article describes one way in which capital structure can be relevant. Securities don’t always sell for their true value. Thus when calculating the adjusted present value of a project, you need to include the mispricing of the security issue in addition to the tax shield, the transactions costs, and the costs of financial distress.

2 In finance 1, we learned that investors choose different portfolios because of different risk preferences and possibly different information. In this class, we will add a third dimension: tax preferences.
Organizational Form (4)

Most operating assets in an economy are held through a corporation, partnership, or other legal entity opposed to help directly. The decision of how to hold operating assets is heavily influenced by how the returns on the assets are taxed. We will first discuss how corporations versus pass-through entities (e.g., partnerships) are taxed. We will then use this logic to apply it to three topics: real estate investment trusts, dividend taxation, and integrated corporate tax systems. Many countries integrate the personal and corporate tax systems (the US does not).

SWEMS: Chapter 4 and 12
“Abolish the Corporate Income Tax”, Wall Street Journal

Week 4:
Western and Southern Enterprise Case

This case is a security design case. WSE is facing a good problem. Their position in one stock has grown dramatically but their asset allocation may now need to be adjusted. In addition to two simple solutions (hold the position or sell the position), WSE can issue a DECS security (debt exchangeable for common stock). The case will require you to apply your understanding of capital gains taxation to evaluate the tax cost of selling their equity position versus the alternatives. You will also need to consider other relevant terms in the NPV[Financing] for each of the alternatives.

Western and Southern Enterprises case
Western and Southern Enterprises pre-submission questions
Western and Southern Enterprises questions

Organizational Form (4) [continued]

Week 5:
Organizational Form (4) [continued]

Investment Incentives (5)

As we saw with financial investments, the return on an asset and thus the optimal investment decision is driven by how the returns are taxed. Tax codes contain a variety of tax incentives for capital investments. Governments can encourage private investment in

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3 Although this is not a recent article, it provides a useful and timeless history of the origins of the corporate tax in the U.S.

4 In the corporate finance pre-requisite, we valued firms including the effects of capital structure

\[
NPV[Project] = NPV[Project|CSI] + NPV[Financing]
\]

In an M&M world, the NPV[Financing] is zero. In the real world it often is not. Each of the terms of the NPV[Financing] correspond to an assumption of M&M. Thus, one term is the change in the present value of taxes generated by the security issue. You should consider this and other terms of the NPV[Financing].

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capital with tax credits, accelerated depreciation schedules, or targeted reductions in tax rates. After discussing the different investment incentives, we will apply the logic to a firm’s decision to lease physical capital. Leasing is a way to separate the ownership of an asset from its use. The decision to lease is driven by the efficient allocation of the tax and non-tax benefits of ownership.

**BD: Chapter 25 – Leasing**

“Surprise Loophole: Firms Expect Leasing to Save Them Millions under New Tax Law” *Wall Street Journal*

**Week 6:**

**Investment Incentives (5) [continued]**

**Transaction Taxation: Mergers, Acquisitions, and Divestitures (6)**

Investors can buy or sell assets or the corporations which own them. How the transaction is taxed depends upon whether the assets or the stock of the corporation is sold. In this session, we will discuss several different merger methods and how they affect the taxes paid by the corporation and the firm’s investors. We will also discuss spinoffs.

*SWEMS, Chapter 13, 14, and 16*

**Week 7:**

**Transaction Taxation: Mergers, Acquisitions, & Divestitures (6) [continued]**

**International Taxation (7)**

When corporations operate in multiple countries, they may pay taxes in multiple countries. To prevent the income from being taxed twice countries use a territorial tax system (only taxing domestic corporations) or world-wide taxation (taxing the income of foreign subsidiaries of the domestic parent but giving a credit for taxes in the home country). In this session, I will explain how taxes are calculated in each system and how this affects the investor’s returns. We will also discuss the incentive for moving income within the firm (but across geographies) and repatriating income of a foreign subsidiary.

*SWEMS, Chapter 10 and 11*
Week 8:

Burlington Northern Railroad Case
The Burlington Northern Railroad has already decided to purchase an auto rack for $22M. Now they must decide how to finance the purchase. You will explain whether the lease is an efficient form of financing by calculating the NPV of leasing relative to the alternative financing options. The case will build upon your knowledge of the tax advantages of leasing as well as how to value the purchase options embedded in the lease.

Burlington Northern Railroad case
Burlington Northern Railroad pre-submission questions
Burlington Northern Railroad questions

International Taxation (7) [continued]

Week 9:

Gulf Canada Case
This case examines the acquisition of Gulf Canada Corporation by Olympia and York. Although the basic transaction is simple (the purchase of one corporation by another), the actual transaction was complex. The case will require you to apply your knowledge of transaction taxation as well as finance more generally. Given the complexity of the transaction, I will not ask you to submit a case memo for this case. Instead, you should be prepared to explain each of the 10 steps of the transaction and the logic behind their design. Your group will be expected to submit a presubmission for the case.

Gulf-Canada Ltd pre-submission questions
Gulf-Canada Ltd questions
Gulf-Canada Ltd case

International Taxation (7) [continued]

5 Since you will not be submitting a case memo for Gulf Canada, these questions and exercises are to help you prepare for class discussion.
Week 10:

Financial Innovation (8)

The financial industry is incredibly creative and continues to develop new securities (products). Much of this innovation is driven when accounting, regulatory, and, tax systems try to create sharp distinctions between two transactions or securities where no sharp distinction exists in the real world. In this session, we will first discuss how innovation is different in the finance industry than other industries. I will then present you with three problems which firms or investors face and how securities were developed to solve these problems.

Berk and Demarzo: Chapter 24 (convertible provisions section).


Week 11:

Final Exam

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6 This is a major reason why derivatives are such a prominent building block in security design. Derivatives allow you to build synthetic securities whose accounting, regulatory, or tax treatment does not match the economics of the security. This is why knowledge of how derivatives work and are priced is such a powerful tool.

7 Security innovation can arise from the buy or the sell side. Either an investor wants a security with a set of characteristics including tax attributes that does not exist. The bank develops the security and then figures out how to create it from pieces it can find in the market. Alternatively, a firm wants to issue a security with particular characteristics including tax attributes. The bank then finds a set of investors who want to purchase the security or at least the parts. We saw this in the WSE case. In both cases, the bank may disassemble the security and reassemble it in a different way or sell the pieces separately.

8 Read this article partially as history, and partially as predicting the future. The article is written by Merton Miller (the father of capital structure irrelevance). The article predates an enormous amount of innovation, but also foresees some of the broad trends.
PREREQUISITES

You have already fulfilled the prerequisites. The following explains the concepts from the prerequisites which I will use and expect you to know. If you need to review any of these concepts, please do so at the beginning of the quarter and then ask questions on the discussion group if some of the concepts are not completely clear.

Corporate Finance (FINC 431/FINC 440):
There are only three questions that need to be answered in corporate finance: (1) valuation, (2) capital structure, and (3) dividend policy. We will run into all three in class. When valuing securities or projects, there are three fundamental ways to value an investment: discounted cash flow, real options, and multiples. We may see all three in this class, although most of the focus will be on discounted cash flow. We will also examine the tax implications of capital structure (including risk management) and dividend policy. As in your corporate finance course, the framework we will use is Modigliani-Miller (M&M). The assumption of no taxes (or rather no tax effects) will be violated in almost every example we look at. Various combinations of the other assumptions will be violated as well. In most cases when examining how to fund a project, you are trading off taxes and some other benefit or cost. Usually these arise from one of the other five M&M assumptions. You should remember the six assumptions and the implications of their violation (e.g. when is capital structure, risk management, or payout policy relevant?).

Options and Derivatives:
In your corporate finance classes (FINC430 and FINC431 or FINC440), you covered the basis structure and logic of options as well as several applications. You drew payoff diagrams and you were introduced to the basic intuition of pricing (e.g. Black-Scholes), but did not learn it. You learned that debt, equity, and convertible bonds have embedded options. We will build upon and apply this knowledge in the tax class.

The role of derivatives has changed over the last two decades from a small subfield of finance to an omnipresent tool like DCF. It has become a skill set that any reasonably well-trained finance person should be familiar with. The logic of derivatives permeates all areas of finance today. Taxation is no exception. The reason is simple. With derivatives you can build synthetic securities that are economically identical to existing vanilla security but which may be treated differently by the tax, accounting, or regulatory authorities. Since MBAs understand derivatives and how to build securities, but those who write and enforce the tax rules do not always understand the concepts or mechanics, derivatives have become the weapon of choice in many tax influenced deals.

You will see derivatives and options in this class. You should be comfortable with drawing

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9 You will find the Summary of Corporate Finance in your packet. This is my attempt to summarize the concepts from Finance 1 and Finance 2 (or Accelerated Corporate Finance). You should use it as a reference when these issues arise in this class or beyond.

10 As you know from your corporate class, the multiples approach is really a pricing method not a valuation method.
and interpreting payoff diagrams for options and portfolios including options. You should be familiar with using the Black-Scholes formula to price options, understanding the logic of Black-Scholes, and be able to think about how one selects the inputs to the Black-Scholes formula. Finally, I would like you to have an intuitive understanding of risk neutral pricing as it is useful when it comes time to explain your answers to the less sophisticated. I have included a derivatives tutorial and some practice exercises in your packet. They cover the three derivatives topics I want you to understand: payoff diagrams, simple option pricing, and the logic of risk-neutral pricing. Review these and if the concepts make sense, then you are prepared. If they do not make sense, ask me in person or on the discussion group. I will help fill in any gaps, but you need to take the lead.

ASSIGNMENTS

Deadlines for this class are non-negotiable. Put them on your calendar now. If you have a question about a deadline, you should resolve your question far enough in advance of the deadline that you can still complete the assignment by the due date. Assignments will not be accepted after the due date and exams may not be taken late. Do not ask me to make an exception. I will not. Turning in assignments after the due date or taking an exam late may provide a student with an "unfair advantage over other students." Students unable to complete the course assignments and exams by the due date will receive a zero and therefore may not pass this class.

Online Quizzes:

Some of the concepts I want to teach you are numeric, for example, calculating after-tax rates of return. These questions have a single correct answer. Many of the concepts I want to teach you are less concrete. There may be a range of correct answers opposed to a single one. There is also a wide range of incorrect answers. Since class time is scarce, I have carved out many of the computational exercises and have incorporated these into the online quizzes. We are going to use technology to leverage the scarce resource of time and give you real time feedback as well.

The online quizzes will be completed though Canvas. You may attempt the quizzes as many times as you like. I will count your highest score. The computer will tell you whether your answer is right or wrong, but not what the correct answer is. You must complete the quiz prior to the due date to receive credit. Please pay careful attention to the due date and time as the quizzes are not due in class. You should read and work on the questions prior to sitting down at the computer. The full text of the quiz questions is in your packet. An abbreviated version of the questions is on Canvas. I have also posted a spreadsheet you will need for several of the quizzes on Canvas. Although you may use your group as a resource on the quizzes, you should solve the quizzes yourself. I would recommend you try the quiz on your own and enter your first guesses into the computer before talking to your group. Then you can ask your group for help on the logic and intuition of the questions, but not the details. Since you can take the quiz several times, I

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11 We will not formally cover risk-neutral pricing in this class and you will not be held responsible for this material on assignments or exams. Risk-neutral pricing is the logic behind all derivatives pricing including Black-Scholes. It is also the intuition behind the capital asset pricing model (CAPM). Thus, you will find it a useful tool to have in your toolbox.

8 Tax Strategy Syllabus
recommend you start them well before the due date. It would also be wise to look through them early in the quarter so you know when we are covering material which is useful.

**Case Assignments:**

The case memos should be three to five written pages plus tables and figures. They will be prepared and submitted as a group. Brevity is a virtue. Do not just repeat the facts of the case; I have read it. The case questions are in your packet. They should be a guide to your answer, but do not just answer each question. This does not look like a professional memo that you would present at work. Instead, you should write a persuasive document that convinces me your solution is correct. You should support your answer with logic, facts and numbers from the case, and intuition from class. Important points and details can be included in the text, in the footnotes or in the appendix depending upon the level of importance. I expect the answers to be both well-reasoned and well-presented. The cases are your opportunity to apply the concepts you have learned to messy, real world problems. In the real world, understanding the concepts is important; being able to explain them to your boss, colleagues, and clients is equally important. I will thus grade your case memos based on both your answers as well as how well you defend your proposed solution. If I have trouble reading it or understanding it, that is a problem. Case memos are due the day we discuss the case at the beginning of class (6:30pm CST). A member of your group should upload a pdf of your case memo to Canvas. You should keep a copy of your answers as you will be expected to contribute to the class discussion based on your written answers. I find that groups do much better, and more importantly learn more, when they come by to talk to me as a group as they work through the issues.

**Case Presubmissions:**

For the two cases where your group will submit a case memo, I will also collect your group’s preliminary answers to the case the night before it is due (6pm CST). You will answer a few short questions (a number or a few sentences) through Canvas. The presubmission questions are in your packet. This gives me a chance to preview your answers before class. I will be able to show you the distribution of submitted answers and you can then defend your answers in class. You are not committed to the presubmission answers. You will receive full credit if you answer all of the questions on the submissions.

For the Gulf Canada cases where you do not submit a case memo, I will collect your answers to the cases through Canvas the day before we discuss the case in class. I will grade the content of your submissions on the Gulf Canada case. I will collect your answer to this case the night before as I will use the distribution of your answers in our class discussion. You should bring a copy of your submission to class so you can participate in the discussion.

**Exams:**

There will be a take home midterm during the fifth week of classes and an in class final during exam week. There is a practice midterm quiz to make sure you know how to download the real midterm and upload your answers. The final will be cumulative.

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12 Canvas will only accept pdf submissions and your submission should be in a single file. If you upload multiple files, I will not necessarily read the additional files.
HONOR CODE

You are encouraged to work in groups, which raises the question of what behavior is consistent with the Honor Code as it applied to group assignments. I expect you to have a full understanding of any written material you submit with your name on it. You may come to this understanding in collaboration with a group, but material handed in under your name must reflect your own distillation of the group discussion. For example, suppose a group member creates a spreadsheet and you include the spreadsheet in the appendix of your case memo. I would expect you to be completely familiar with and able to answer questions about the calculations and assumptions upon which the answer is built.

Individual assignments should be solely your own work.

GRADING AND DUE DATES

Assignments are due at the beginning of class unless otherwise noted. Many of the assignments are due prior to class, so pay close attention to when they are due. Your total score is based on the sum of the points you earn with two exceptions. First, I will drop the lowest scores from the following seven assignments (the face card, the five quizzes, and the practice midterm quiz). These assignments are denoted by * on the next page. In addition, I will let you drop the midterm score and I will adjust your score on the final (I will multiply it by 1.5) if this improves your score. You do not need to tell me what to do. I can figure it out on my own. I will calculate your score both ways and use the higher score.

\[
\text{Total score} = \text{Face card} + \sum_{i=1}^{5} \text{Quiz}_i - \text{Lowest of *assignments} + \text{WSE presubmission} + \text{WSE case memo} + \text{Gulf presubmission} + \text{Practice Midterm Quiz} + \text{BNRR presubmission} + \text{BNRR case memo} + \text{Max} [\text{Midterm+Final,} 3/2 \text{Final Exam}] 
\]
<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Points</th>
<th>Submission Method</th>
<th>Individual or Group</th>
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<tbody>
<tr>
<td>Quiz 1*</td>
<td>Mon, January 14(^{th}) @ 6pm</td>
<td>25</td>
<td>Canvas</td>
<td>Individual</td>
</tr>
<tr>
<td>Face cards*</td>
<td>Tue, January 15(^{th})</td>
<td>25</td>
<td>Class</td>
<td>Individual</td>
</tr>
<tr>
<td>Quiz 2*</td>
<td>Mon, January 21(^{st}) @ 6pm</td>
<td>25</td>
<td>Canvas</td>
<td>Individual</td>
</tr>
<tr>
<td>WSE pre-submission(^{15})</td>
<td>Mon, January 28(^{th}) @ 6pm</td>
<td>10</td>
<td>ForClass</td>
<td>Group</td>
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<tr>
<td>WSE case Memo</td>
<td>Tue, January 29(^{th}) @ 6:30pm</td>
<td>60</td>
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<td>Group</td>
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<td>Quiz 3*</td>
<td>Mon, February 4(^{th}) @ 6pm</td>
<td>25</td>
<td>Canvas</td>
<td>Individual</td>
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<tr>
<td>Midterm Practice Quiz*</td>
<td>Tue, February 11(^{th}) @ 6pm</td>
<td>25</td>
<td>Canvas</td>
<td>Individual</td>
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<tr>
<td>Midterm(^{16})</td>
<td>Tue, February 12(^{th}) @ 6pm</td>
<td>120</td>
<td>Class</td>
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<td>Quiz 4*</td>
<td>Mon, February 18(^{th}) @ 6pm</td>
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<td>BNRR pre-submission</td>
<td>Mon, February 25(^{th}) @ 6pm</td>
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<td>BNRR case memo</td>
<td>Tue, February 26(^{th}) @ 6:30pm</td>
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<td>Gulf pre-submission</td>
<td>Mon, March 4(^{th}) @ 6pm</td>
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<td>Quiz 5*</td>
<td>Mon, March 11(^{th}) @ 6pm</td>
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<td>TBD</td>
<td>240</td>
<td>Class</td>
<td>Individual</td>
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Total 675

\(^{13}\) To submit assignments through Canvas, you can click on Assignments and then the specific assignment. The case memo will be submitted through Canvas and must be submitted as a single pdf file. Do not submit multiple files.

\(^{14}\) On the group assignments, you should work in a group and submit one case memo or one presubmission for the entire group. Please make sure you list all group members’ names on the submission as well as your group letter. For the quizzes, you will each submit your own answers electronically. If you find it useful to ask your group mates for guidance, help, and wisdom on the quizzes, that is fine, but not specific answers. Your work must be your own on individual assignments.

\(^{15}\) For the two cases where you submit a case memo, I will give you full credit on the presubmission if you submit it. On the third case, I will grade the content of your presubmission.

\(^{16}\) The midterm will be a take home and will be posted on Canvas on Thursday, February 7\(^{th}\) and will be due on Tuesday, February 12\(^{th}\) by 6pm. It is a 3-hour exam. Thus you may take it any time over the time period, but you may work on it for only three consecutive hours. Do not look at the exam until you are ready to start. More details on submissions method will be distributed later.

The midterm practice quiz is a chance for you to test the logistics of unlocking the midterm file, completing it and then uploading it. It is due the day before the midterm but I recommend you try it early to make sure you know how to take the exam. If you run into trouble on the quiz, you will likely run into the same trouble on the actual midterm. Thus, figure this out early.

\(^{17}\) The office of student affairs usually offers early exam options. Whatever they offer, I will go along with.