Empirical Accounting Research Seminar
Capital Markets and Anomalies
ACG 7939

Professor: Dr. Marcus Kirk
Spring 2017

Office hours: By appointment   Email: marcuskirk@ufl.edu

Class: GER 327 (conference room)   Phone: office (352) 273-0222
                Fridays 9:00 – 12:00

Course description and objectives
The main objective of this course is to provide doctoral students with the tools needed for educated consumption of and research careers in archival-empirical research (with a focus on market-based financial accounting research). Upon completion of this course, students should have a basic knowledge of the market-based literature in accounting and should have the basics necessary to create, understand, appreciate, and critique such research.

Course structure
We will meet on a weekly basis for three hours. The core theme of the course will be structured around pricing anomalies in the capital markets. We will proceed through the issues in the literature related to this theme in the order presented below. All the main readings are required, but some will be emphasized more and are selected for student presentation.

Course requirements
The course will require an in-depth reading of the topics each week. All students are expected to participate in all discussions. For each paper, one student will be designated as the discussion leader for that week. The discussion leader will use 10-15 minutes to introduce the paper and share his/her understanding of it. After which the discussion leader will continue as the point-man for that paper during the class. Leading the paper discussion is a good opportunity to check your understanding and practice your communication skills. You are not allowed to use PowerPoint slides or read from a prepared sheet. You must talk to your audience and make eye contact.

You are required to read the assigned papers and distribute one written question or comment per paper to the instructor and other students by **5pm on Thursday before** the class (post in Canvas). Ideally, these questions and comments should address the paper's motivation, methodology, results, conclusions, or extensions. They could be issues that you have difficulty understanding or that you would like the class to prominently discuss. While clarifying questions and comments over minor technical issue of terminology or statistics are welcome to submit, they should not be considered as your primary question or comment.

A general guide, the flow of our class discussion will typically:

Describe the research question and motivation (What is the research question? Why is it important? Who cares, and why? What new insights does the paper offer?)

Evaluate the research method(s) (If the author appeals to theory, is the theory appropriate? What empirical models are used? Are they appropriate? Do the models match the hypotheses? Do the sample selection criteria threaten the study's validity or generalizability? Are the statistical tests adequate for evaluating the hypotheses?)

Describe the results (Are the conclusions justified? What could be alternative explanations for the authors' findings that they have not considered or successfully ruled out? Can you use one sentence to summarize what the paper is about?)

During the course, you will be required to (1) submit critiques of assigned working papers and (2) submit and present a research paper on an archival financial study. The papers for the critiques will be provided to you during the semester. To monitor your progress on your research paper, I expect to receive an update on it by **April 1**. You will present your research paper on **April 28** and submit a written research paper by **May 15**, which should include the introduction, literature review, hypotheses, research design, and results and be between 20 to 25 double-spaced pages plus figures and tables.

Additionally, each student will complete a series of assigned empirical projects during the semester. These projects will entail following the broad methodology of papers we discuss in class.

Grading:
Success in a Ph.D. program comes from self-motivation, not outside pressure. You should not work to merely get good grades but work to learn how to conduct high-quality academic research.

My evaluations will be based on:

Class discussions	25%
Written critiques	15%
Empirical projects	30%
Research paper	30%

CLASS DISCUSSIONS (25%)
Class participation (either during class time or on the course's conference) is important because it enhances everyone's learning experience. You should strive to be a contributing and valuable member of the class. Feel free to ask questions about issues that you or your peers are unclear, contribute your ideas and insights, offer examples, challenge everyone's assumptions and analyses, and raise interesting directions for class discussion. The emphasis of your class participation should be on the quality of your contribution, not on the duration of your "air time." Included here are the written questions and comments on the required readings.

WRITTEN CRITIQUES (15%)
I am a 2017 AAA FARS Annual Meeting Track Chair for the sub-topic Valuation and Fundamental Analysis. As part of this I will be a "mini editor" for a subset of submissions. I will assign some of these submissions to you and require you write a written critique on them for the 2017 AAA Annual meeting. Your critiques will be anonymously sent to the authors and will be taken into account for the inclusion of the papers in the concurrent sessions.

EMPIRICAL PROJECTS (30%)
Each student will complete a series of empirical projects during the semester. These projects will build on each other and will follow the broad methodology of papers we discuss in class. All projects will rely on the WRDS database and use SAS & STATA.

RESEARCH PAPER (30%)
I will choose detailed research paper topics and will assign them individually to students near the beginning of the class. The purpose of this is for you to complete a research paper using the structure of the empirical projects and well as your own initiative in developing the literature review and research design.

Course Grade:
> Final grades will be based on the obtaining the following percentage of total course points:
>> 90-100% = A; 89-89% = A-; 87-88% = B+; 80-86% = B; 79-79% = B-; 77 -78% = C+; 70-76%= C; 69-69% = C-; 60-68% = D; 0-59%=E. Required percentages may be reduced but will not be raised.

Grade Values:
> The grade-point value per credit hour associated with each letter grade is assigned by the Office of the University Registrar:
>> A = 4.0, A- = 3.67, B+ = 3.33, B = 3.0, B- = 2.67, C+ = 2.33, C = 2.0, C- = 1.67, D+ 1.33, D = 1.0, D- = .67, E = 0.0
> For more information visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Examinations, Quizzes and other Matters:
1. The policies in this syllabus do not change throughout the term. **However, circumstances may require changes in dates.**
2. Grades are not subject to negotiations.
3. Barring a documented emergency, an extension request must be made a minimum of ten days prior to the scheduled exam. Exceptions are made if the policy conflicts with UF attendance requirements. More detail on acceptable reasons for absence and UF policies on attendance are found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Attendance Policy:
> Attendance is a <u>minimum</u> requirement in this course, and exam performance is adversely affected by absences. Material that is not in the text may be covered in lectures. Students should prepare for all classes even if they miss and are responsible for material covered in their absence. Students may not attend a class unless they are officially registered for the course. The Fisher School of Accounting does not approve requests to audit its courses. Students who do not attend at least one of the first two class meetings of a course or laboratory in which they are registered, and who have not contacted the School to indicate their intent, may be dropped from the course. The instructor adheres to all UF attendance polices.

Academic Honesty
In 1995 the UF student body enacted a new honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

Preamble: In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.
On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Student Responsibility. Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean or Student Honor Court.

Faculty Responsibility. Faculty members have a duty to promote honest behavior and to avoid practices and environments that foster cheating in their classes. Teachers should encourage students to bring negative conditions or incidents of dishonesty to their attention. In their own work, teachers should practice the same high standards they expect from their students.

Administration Responsibility. As highly visible members of our academic community, administrators should be ever vigilant to promote academic honesty and conduct their lives in an ethically exemplary manner.

Academic dishonesty will not be tolerated. Students are required to know and comply with the university's policy on academic honesty. This policy is detailed in the Undergraduate Catalog and by reference is included in this course syllabus. For more information visit:
https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/

Civility:
This course will be conducted in a courteous and professional manner. Inappropriate classroom behavior of any form will not be tolerated. At the instructor's discretion, students acting in an uncivil manner will receive a grade reduction commensurate with the infraction. Students can be withdrawn from the course for excessive unacceptable behavior.

Disabilities:
Students requesting classroom accommodations must first register with the Dean of Students Office. Support services for students with disabilities are coordinated by the Disability Resource Center in the Dean of Students Office. All support services provided for University of Florida students are individualized to meet the needs of students with disabilities. To obtain individual support services, each student must meet with one of the support coordinators in the Disability

Resources Program and collaboratively develop appropriate support strategies. Appropriate documentation regarding the student's disability is necessary to obtain any reasonable accommodation or support service. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor a minimum of ten days prior to the requested accommodation.

Evaluation:

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/

Course outline

DATE	CLASS PERIOD	TOPIC
1/6	L01	Surveys and anomalies
1/13	L02	Empirical methodology
1/20	L03	Constraints and questions (DUE: Table 1)
1/27		FARS Conference (No class)
2/3	L04	Market efficiency
2/10	L05	Valuation models (residual income) (DUE: Table 2)
2/17	L06	Fundamental analysis (DUE: Table 3)
2/24	L07	Accounting ratios
3/3	L08	Momentum and Post-Earnings-Announcement-Drift (PEAD) (DUE: Table 4)
3/10		Spring Break (No class)
3/17	L09	Accruals and cash flows (DUE: Table 5)
3/24	L10	Earnings quality
3/31	L11	Disclosure (DUE: Table 6)
4/7	L12	Analysts
4/14	L13	Miscellaneous
4/21		Reading day (No class)
4/28		Research paper presentations
5/15		Research paper due

Detailed class schedule

Class/date	Topic/Readings

1 – Fri. 1/6   **Surveys and anomalies**

READINGS: Richardson, S., Tuna, I., and P. Wysocki. 2010. Accounting anomalies and fundamental analysis: a review of recent research advances. *Journal of Accounting and Economics* 50: 410-454.

Lewellen, J. 2010. Accounting anomalies and fundamental analysis: an alternative view. *Journal of Accounting and Economics* 50: 455-466.

Green, J., Hand, J., and F. Zhang. 2013. The supraview of return predictive signals. *Review of Accounting Studies* 18: 692-730.

BACKGROUND: Baberis, N., and R. Thaler 2003. A survey of behavioral finance. In *Handbook of the Economics of Finance*. 1054-1128.

Schwert, W. 2003. Anomalies and market efficiency. In *Handbook of the Economics of Finance*. 941-974.

J.P. Morgan. US Factor Reference Book.

Kahneman, D., Knetsch, J., and R. Thaler. 1991. Anomalies: the endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives* 5(1): 193-206.

Detailed class schedule

Class/date	Topic/Readings

2 – Fri. 1/13 **Empirical methodology**
Note: pay particular attention to the empirical tests in the papers – e.g. decile/quintile portfolios, Fama-MacBeth regressions (cross-section), portfolio sorts and double sorts, time-series asset pricing model regressions (e.g. against a factor model), the development of a factor, subsamples, and more.

READINGS: Fama, E., and K. French. 2015. A five-factor asset pricing model. *Journal of Financial Economics* 116:1-22.

Novy-Marx, R. 2013. The other side of value: the gross profitability premium. *Journal of Financial Economics*. 108: 1-28.

Hirshleifer, D., Hou, K., and S. Teoh, S. 2012. The accrual anomaly: risk or mispricing. *Management Science* 58(2): 320-335.

BACKGROUND: Goyal, A. 2012. Empirical cross-sectional asset pricing: a survey. *Financial Markets Portfolio Management* 26: 3-38.

Hoberg, G., and I. Welch. 2009. Optimized vs sort-based portfolios. Working paper.

Fama, E., and K. French. 1993. Common risk factors in the returns of stocks and bonds. *Journal of Financial Economics* 33: 3-56.

Daniel, K., and S. Titman. 1997. Evidence on the characteristics of cross sectional variation in stock returns. *Journal of Finance Volume* 52(1): 1-33.

Detailed class schedule

Class/date	Topic/Readings

3 – Fri. 1/20 **Constraints and questions (DUE: Table 1)**

READINGS: Novy-Marx, R. 2014. Predicting anomaly performance with politics, the weather, global warming, sunspots, and the stars. *Journal of Financial Economics* 112: 137-146.

Beaver, W., McNichols, and R. Price. 2014 Assessing the cost of accounting-based long-short trades: should you invest a billion dollars in an academic strategy? Working paper. Stanford University

Harvey, C., Liu, Y., and H. Zhu. 2015. …and the cross-section of expected returns. *Review of Financial Studies* 29: 5-68.

BACKGROUND: Sullivan, R., Timmerman, A., and H. White. 2001. Dangers of data mining: the case of calendar effects in stock returns. *Journal of Econometrics* 105(1): 249-286.

Shleifer, A., and R. Vishny. 1997. The limits of arbitrage. *Journal of Finance* 52(1): 35-55.

Lo, A. and C. MacKinlay. 1990. Data-snooping biases in tests of financial asset pricing models. *Review of Financial Studies* 3(3): 431-467

4 – Fri. 1/27 **FARS conference**

READINGS: No Class

Detailed class schedule

Class/date	Topic/Readings

5 – Fri. 2/3   **Market efficiency**

READINGS: Lee, C. 2001. Market efficiency and accounting research: A discussion of 'Capital market research in accounting' by S.P. Kothari," *Journal of Accounting and Economics* (September): 233-253.

Fama, E. 2014. Two pillars of asset pricing. *American Economic Review* 104(6): 1467-1485.

Nichols, C., and J. Wahlen. 2004. How do earnings numbers relate to stock returns? Review of classic accounting research with updated evidence. *Accounting Horizons* 18(4): 263-286.

BACKGROUND: Fama, E. 1998. Market efficiency, long-term returns, and behavioral finance, *Journal of Financial Economics* (September): 283-306.

Dechow, P., Sloan, R., and J. Zha. 2014. Stock prices and earnings: a history of research. *Annual Review of Financial Economics* 6: 343-363.

Hayek, F. 1945. The use of knowledge in society. *American Economic Review* 35(4): 519-530.

6 – Fri. 2/10   **Valuation models (residual income) (DUE: Table 2)**

READINGS: Bernard, V.L. 1995. The Feltham-Ohlson framework: implications for empiricists, *Contemporary Accounting Research* (April): 733-747.

Frankel, R., and C. Lee. 1998. Accounting valuation, market expectations, and cross-sectional stock returns, *Journal of Accounting & Economics* (June), 283-319.

Dechow, P., A. Hutton, and R. Sloan. 1999. An empirical assessment of the Residual Income Valuation Model, *Journal of Accounting and Economics* 26: 1-34, including discussion by W. Beaver, p. 35-42.

BACKGROUND: Ohlson, J.A., 1995. Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research* 11, 661–687.

Ohlson, J. 2005. On accounting-based valuation formulae, *Review of Accounting Studies* (June): 323-347.

Damodaran, A. 2005. Valuation approaches and metrics: a survey of the theory and evidence. *Foundation and Trends in Finance* 1: 693-784.

Detailed class schedule

Class/date	Topic/Readings

7 – Fri. 2/17   **Fundamental analysis (DUE: Table 3)**

READINGS: Mohanram, P. 2005. Separating winners from losers among low book-to-market stocks using financial statement analysis. *Review of Accounting Studies* (June): 133-170. Also see discussion by Piotroski on pp. 171-184.

Piotroski, P. 2000. Value investing: the use of historical financial statement information to separate winners from losers. *Journal of Accounting Research* 38: 1-41.

Dichev, I. 1998. Is the risk of bankruptcy a systematic risk? *Journal of Finance* 53(3): 1131-1147.

BACKGROUND: Nissim, D., and S. Penman. 2001. Ratio analysis and equity valuation: from research to practice. *Review of Accounting Studies* 6: 109-154.

Campbell, J., Hilscher, J., and J Szilagyi. 2008. In search of distress risk. *Journal of Finance* 63(6): 2899-2939

Asness, C., Frazzini, A., and L. Pedersen. 2014. Quality minus junk. Working paper.

8 – Fri. 2/24   **Accounting ratios**

READINGS: Soliman, M. 2008. The use of DuPont analysis by market participants. *Accounting Review* 83(3): 823-853.

Penman, S., Richardson, S., and I. Tuna. 2007. The book-to-price effect in stock returns: accounting for leverage. *Journal of Accounting Research* 45(2): 427-468

Bradshaw, M., Richardson, S., and R. Sloan. 2006. The relation between corporate financing activities, analysts' forecasts and stock returns. *Journal of Accounting and Economics* 42: 53-85.

BACKGROUND: Hirshleifer, D., K. Hou, S. Teoh, and Y. Zhang. 2004. Do investors overvalue firms with bloated balance sheets? *Journal of Accounting & Economics* (December): 297-331.

Fairfield, P. and T. Yohn. 2001. Using asset turnover and profit margin to forecast change in profitability. *Review of Accounting Studies* 6: 372-386.

Cooper, M., Gulen, H., and M Schill. 2008. Asset growth and the cross-section of stock returns. *Journal of Finance* 63(4): 1609-1651

Detailed class schedule

Class/date	Topic/Readings

9– Fri. 3/3   **Momentum & Post-Earnings-Announcement-Drift (PEAD) (DUE: Table 4)**

READINGS: Chordia, T. and L. Shivakumar. 2006 Earnings and price momentum. *Journal of Financial Economics* (June): 627-656.

Asness, C., Mokowitz, T., and L. Pedersen. 2013. Value and momentum everywhere. *Journal of Finance*. 68 (3): 929-985.

Hirshleifer, D., Lim, S., and S. Teoh. 2009. Driven to distraction: extraneous events and underreaction to earnings news. *Journal of Finance* 64(5): 2289-2325.

BACKGROUND: Jegadeesh, N., and S. Titman. 2001. Profitability of momentum strategies: an evaluation of alternative explanations. *Journal of Finance* 56(2): 699-720.

Bernard, V., and J. Thomas, 1989. Post-earnings announcement drift: delayed price response or risk premium? *Journal of Accounting Research* (Supplement): 1-48.

Chan, L., Jegadeesh, N., and J. Lakonishok. 1996. Momentum strategies. *Journal of Finance* 51(5): 1681-1713.

Fri. 3/10   **Spring Break**

Detailed class schedule

Class/date	Topic/Assignments

10 – Fri. 3/17   **Accruals and cash flows (DUE: Table 5)**

READINGS: Bradshaw, M., Richardson, S., and R. Sloan. 2001. Do analysts and auditors use information in accruals? *Journal of Accounting Research* 42: 53-85.

Richardson, S., Sloan, R., Soliman, M., and I. Tuna. 2005. Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics* 39(3): 437-485.

Xie, H. 2001. The mispricing of abnormal accruals. *Accounting Review* (July): 357-373.

BACKGROUND: Sloan, R., 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? *Accounting Review* (July): 289-315.

Mashruwala, C., S. Rajgopal, and T. Shevlin, 2006. Why is the accrual anomaly not arbitraged away? The role of idiosyncratic risk and transaction costs. *Journal of Accounting & Economics* (October): 3-33.

Green, J., Hand., J., and M. Soliman. 2011. Going, going, gone? The apparent demise of the accruals anomaly. *Management Science* 57(5): 797-816.

11 – Fri. 3/24   **Earnings quality**

READINGS: Beneish, M., Lee, C., and C. Nichols. 2013. Earnings manipulation and expected returns. *Financial Analysts Journal* 69(2): 57-82

Francis, J., Lafond, R., Olsson, P., and K. Schipper. 2007. Information uncertainty and post-earnings announcement drift. *Journal of Business, Finance and Accounting* 34(3-4): 403-433

Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2005. The market pricing of accruals quality. *Journal of Accounting & Economics* (June): 295-327.

BACKGROUND: Core, J., Guay., W., and R. Verdi. 2008. Is accruals quality a priced risk factor? *Journal of Accounting and Economics* 46(1): 2-22.

Dechow, P., Sloan, R. and Sweeney, A. 1995. Detecting earnings management. *The Accounting Review* (April): 193-226.

Jones, K., Krishnan, G., and K. Melendrez. 2008. Do models of discretionary accruals detect actual cases of fraudulent and restated earnings? An empirical analysis. *Contemporary Accounting Research* 25(2): 499-531.

Detailed class schedule

Class/date	Topic/Assignments

12 – Fri. 3/31 **Disclosure (DUE: Table 6)**

READINGS: Ng, J., Tuna, I. and R. Verdi. 2013. Management forecast credibility and underreaction to news. *Review of Accounting Studies* 18: 956-986.

Jegadeesh, J., and D. Wu. 2013. Word power: a new approach for content analysis. *Journal of Financial Economics* 110: 712-729.

Larcker, D., and A. Zakolyukina. 2012. Detecting deceptive discussions in conference calls. *Journal of Accounting Research* 50(2): 495-540.

BACKGROUND: Lee, Y. 2012. The effect of quarterly report readability on information efficiency of stock prices. *Contemporary Accounting Research* 29(4): 1137-1170.

You, H., and X. Zhang. 2009. Financial reporting complexity and investor underreaction to 10-K information. *Review of Accounting Studies* 14: 559-586.

Feldman, R., Govindaraj., S., Livnat, J., and B. Segal. 2010. Management's tone change, post earnings announcement drift and accruals. *Review of Accounting Studies* 15(4): 915-953.

13 – Fri. 4/7 **Analysts**

READINGS: Lee, C., and E. So. 2016. Uncovering expected returns: information in analyst coverage proxies. Working paper.

Gleason, C., and C. Lee. 2003. Analyst forecast revisions and market price discovery. *The Accounting Review* 78(1): 193-225.

Jegadeesh, N., Kim, J., Krische, S., and C. Lee. 2004. Analyzing the analysts: when do recommendations add value? *Journal of Finance* 59(3): 1083-1124

BACKGROUND: Barber, B., Lehavy, R., McNichols, M., and B. Trueman. 2001. Can investors profit from the prophets? Security analyst recommendations and stock returns. *Journal of Finance* 56(2): 531-563.

Barber, B., Lehavy, R., McNichols, M., and B. Trueman. 2006. Buys, hold, and sells: the distribution of investment banks' stock ratings and the implications for the profitability of analysts' recommendations. *Journal of Accounting and Economics* 41(1-2): 87-117.

Bradshaw, M. 2004. How do analysts use their earnings forecasts in generating stock recommendations? *Accounting Review* (January): 25-50.

Detailed class schedule

Class/date	Topic/Assignments

14 – Fri. 4/14   **Miscellaneous**

  READINGS: Chang, T., Hartzmark, S., Solomon, D., and E. Soltes. 2016. Being surprised by the unsurprising: earnings seasonality and stock returns. Working paper.

Hirshleifer, D., and T. Shumway. 2003. Good day sunshine: stock returns and the weather. *Journal of Finance* 58(3): 1009-1032

Drake, M., Guest, N., and B. Twedt. 2014. The media and mispricing: the role of the business press in the pricing of accounting information. *The Accounting Review* 89(5): 1673-1701.

15 – Fri. 4/21   **Reading day**

  READINGS: No class

16 – Fri. 4/28   **Research paper presentations**

17 – Mon. 5/15   **Research paper due**

Empirical Projects

- **Notes:**
  - **Before** the class when it's due, post your **table** to Canvas
  - **After** the class when it's due, post your **SAS/STATA code** to Canvas
  - Make your tables pretty and stand-alone (i.e. with the notes section, it should be clear what you did and someone could replicate it)
  - I've included some references to tables in papers for helpful hints and inspiration
  - We'll be focusing mainly on monthly returns

- **Table 1: Descriptive statistics (DUE: Jan 20th)**
  - Choose an anomaly that you will use to differentiate firms (you don't have to make one up, you should choose one that interests you – however, you should all choose something different and not accruals)
  - E.g. gross profits-to-assets (Novy Marx 2013); MSCORE (Beneish, Lee, Nichols 2013); abnormal coverage (Lee and So 2016); accruals (Hirshleifer, Hou, Teoh 2012)
  - Download the necessary data from WRDS and program it
  - Create a descriptive statistics table of your anomaly and the variables B/M and size. The table should have two panels: panel A has the n, mean, std. dev., min, 25th, 50th, 75th, max for the variables; panel B has the correlations between the variables (e.g. Novy-Marx 2013 Table A1; Beneish et al. 2013 Table 2)

- **Table 2: Excess returns and characteristics of portfolios (DUE: Feb 10th)**
  - Create market-adjusted and size-adjusted returns for the firms in your sample
  - Sort firms into quintile or decile portfolios based on your factor
  - Create a table showing the average abnormal returns across the portfolios (show both the market-adjusted and the size-adjusted returns) – it's ok to assume equal-weighted of positions within the portfolios (as opposed to value-weighted)
  - Also in the table, show other characteristics across the portfolios
  - Table examples: Lee and So 2016 (Tables 1 and 2); Novy-Marx 2013 (Table 2)

- **Table 3: Excess returns against a factor model (DUE: Feb 17th)**
  - Get the monthly Fama-French and momentum factors from French's website (or WRDS)
  - Regress the monthly returns of the various portfolios as well as the High-Low hedge portfolio against the Fama-French three-factor model plus the momentum factor
  - Table examples: Novy-Marx 2013 (Table 2); Lee and So 2016 (Table 3); Beneish et al. 2013 (Table 4)

- **Table 4: Fama and MacBeth regressions (DUE: March 3rd)**
  - Estimate Fama-MacBeth regressions of your anomaly against some control variables
  - Estimate two versions of it – one with the continuous variables; and one with decile scaled variables (i.e. all between 0 and 1)
  - Table examples: Lee and So 2016 (Table 4); Beneish et al. 2013 (Table 3); Novy-Marx 2013 (Table 1)

- **Table 5: Sorts and double sorts (DUE: March 17ᵗʰ)**
  - Show double-sorts of your factor against size, and then against BM
  - Is it possible to combine your anomaly with size or BM and make it stronger?
  - Table examples: Beneish et al. 2013 (Tables 5 and 6); Novy-Marx 2013 (Tables 4 and 6); Lee and So 2016 (Table 6)

- **Table 6: Create a factor (DUE: March 31ˢᵗ)**
  - Create an asset pricing factor based on your anomaly (e.g. like HML, SMB, etc.) using monthly returns
  - Look at Fama and French (2015), Novy-Marx (2013) and Hirshleifer, Hou, and Teoh (2012) for how to create a factor
  - Panel A: show descriptive statistics of your factor and correlations with the other monthly factors from French's website (e.g. HML, SMB, WML, etc.)
  - Panel B: similar to how you created your anomaly, create a monthly for accruals and get the monthly High-Low decile hedge returns for it. Regress these monthly returns against the Fama-French three-factor model, FF3 + momentum, and then FF3 + momentum + your factor
  - Table examples: Novy-Marx 2013 (Table 9 and 10) Hirshleifer et al (2012) Table 1

- **Things to consider**
  - Value-weighted or equal-weighted deciles
  - Market-adjusted or size-adjusted returns
  - Don't forget about delisting returns
  - Have you merged CRSP, Compustat, IBES (if you're using it) correctly?
  - Winsorize or truncate anything?
  - Exclude any firms (like financial firms)?
  - When would investors be able to sort firms into portfolios based on your factor?

Supplemental data I've gathered for you
- A SAS program from Green, Hand, and Zhang to code multiple return predictive signals (in Canvas and also at https://sites.google.com/site/jeremiahrgreenacctg/home)
- Excel files from Harvey, Liu, and Zhu (2015) with cites and references to anomalies
- Hou, Xue, and Zhang (2016) – a paper with an appendix that references over 300 factors