RUTGERS
Professional Science Master's Program

The Insider Course Report – Fall 2017

Welcome to a new semester! In this newsletter, we discuss some of our ongoing courses and describe some new courses. Read through the newsletter – and feel free to explore courses not necessarily in your immediate area. Technology is continually changing and moving in new directions! And don't forget to attend one of the many online advising sessions we have scheduled.

And now for the courses --

Business Core & Elective Courses:

- Finance & Accounting 16:137:530
- Communication & Leadership 16:137:502
- Marketing:
  - Market Assessment for Bus & Sci 16:137:507
- Ethics 16:137:500
- Capstone 16:137:600
- Electives
  - Project Management 22:799:691 - 11598
  - Exec Ed Electives: 16:137:650 : MiniMBA (12732) or RIE or CCPD (14573)
  - Org Behavior 22:620:691 -12847
  - Negotiations 38:578:505
  - International Business Ethics

As is the case every semester, all of the core business courses are running. ***Principles of Finance & Accounting*** is running Tuesday- day and evening sessions. This is a general course combining both finance and accounting. It is a great business course for new students. The very popular **Communication & Leadership** is running on Mondays (Monday day session for full time students, and a Monday evening session for students that work during the day). This is a great class to take when you are beginning to think of making a career move. As part of this class, students will be interviewing leaders in their field or just professionals that they want to impress and meet. *Don't waste this opportunity – make the most of your interviews to further your career - and make sure you give yourself enough time to make those connections*. This is an opportunity to make a major and lasting impact on your professional future!

Market Assessment for Business & Science is running Wednesday evening. There are two version of this course, the fall is a general course but includes online marketing, digital marketing, and social media marketing. The spring has a life-science focus. This course has a class trip associated with it to see marketing in practice (see here for a blog about the trip). Students also have the option to take any of Mini-MBA courses (16:137:650 ***Topics in Management and Professional Development*** see sidebar). The Mini-MBA is a popular series of courses given by the Executive Education division of the Rutgers Business School. The Mini-MBA courses can be used in place of a marketing course (if you take a mini-MBA marketing), or can be used as a business elective. Please note: for students taking the Mini-MBA marketing, you will be required to learn some more about marketing research methodology on your own in order to complete the capstone course. The 1 credit ***Ethics*** course is also offered this semester – it is a hybrid course. There are some in-person colloquia given by visiting professionals in addition to online exercises. Please make a note of those times. Finally, the ***Capstone course*** is also offered on Thursday

evenings. Remember – in the capstone course you will be doing a presentation in front of our distinguished guest judges. *The final presentation is also open to all students in the program.* We encourage you to come to see what it is all about. Check the events listing on the mbs.rutgers.edu website for the date & time.

There are many different business electives to choose from. Below, the most relevant and popular are highlighted. ***Project Management*** *(*22:799:691 **11598** NB) and ***Organizational Behavior*** (22:620:691 **12847** NB). Please note the index numbers above (and on the web site). **These are special section courses open to students without any prerequisites or special permission numbers**! These courses don't always appear on a search – *you must type in the index number to register*. Another popular business elective being offered is **Negotiation (38:578:505)**, which is offered by the School of Management and Labor Relations. A new course around international business is being offered by policitcal science: **International business ethics: regulation and the state (16:790:574)**. Students can take a ***professional internship*** or ***research internship*** as either a business or science elective. The internship course has an online component that is taught by Kathleen Cashman (our very own executive coach) as advanced leadership & communication. And of course, there are many other business/professional courses being offered on campus. If you find a course that you have the prerequisites for – go for it!

All MBS students can take Executive Education courses for credit. These include the **Mini-MBA** courses and **RIE** (rie.rutgers.edu) – customer experience management, cybersecurity, or CCPD courses (online training – web, six sigma, etc). Register for the correct section of 16:137:650 and then fill out the online form. Please see the instructions at mbs.rutgers.edu/topics-management

And now for the science courses –

Life Sciences:

For those interested in learning about the science in the cosmetic/personal care industry, the popular ***Fundamentals of Personal Care Science*** (16:137:570) is being offered Monday evenings. This course is also great as an elective for students in Biotechnology, Drug Discovery, Food Science and Chemistry. The Personal Care industry is a significant industry in NJ with companies such as J&J, Revlon, Colgate Palmolive, and Chanel all located relatively close to Rutgers (see here for a writeup of the personal care industry). The course is taught by a professional from Presperse with guest lecturers from other companies. It will also include a lab trip. Another personal care offering is our new course in ***Fragrance Applications*** *(16:137:603)* on Wednesday evening. It is a great class for those in personal care and those in food science and covers everything you wanted to know about fragrances and smell!

Our core biotechnology course is 16:137:615 ***Concepts in Biotech/Genomics*** is scheduled on Wednesday evenings – this course covers the latest techniques in biotechnology and how they are used in industry. It is also a great elective for those in Drug Discovery, Food Science, Personal Care Science and Chemistry.

Want to understand how a drug goes from the concept (test-tube phase) to market? Then 16:137:510 ***Drug Discovery from Concept to Market*** is the course for you. Understanding what happens in the

pharmaceutical industry and hearing from professionals in the field from the various (and many) companies in the area is a hallmark of this course. *This is also a great course for those in analytics or engineering management and who are working in the Pharma industry*. The ***Practical Clinical Trial Courses*** *(clinical informatics)* (16:137:580 hybrid) is also running this semester. It includes a clinical research informatics lab using Oracle. The ***Generics Reg in US*** (16:137:585), which is a follow-up to the regulatory affairs course, is also scheduled for the fall on Monday evenings. This class is taught by the very popular Prof. Chand Shista. For those needing a bit more basic background in biochemistry and molecular biology (or a refresher) please see our new course **16:137:603 Spc Topics: Fundamentals of Biological Chemistry in Biotech Industry**. This is a great course for those in Drug Discovery, Biotech, etc. and can be used in place of the biochemistry course requirement.

Interested in Sustainability & Energy? ***Fundamentals of Sustainability -****The practitioner Perspective, from Concepts to Transactions* (16:137:554, Thursday evenings) is a key course for sustainability and engineering management and great for anyone interested in learning more about sustainability, energy services and alternate energy solutions. This course has been revamped and is being taught by Ed Linky who is a Senior Energy Policy Advisor at the EPA. There is a trip as part of this class (*experiential learning component*) to the PSE&G control room to see how the system functions with the national electricity grid.

Concepts in Global Agriculture a foundation course in global agriculture, important for sustainability and biotech. This course is being taught by Prof. Robson and will include many aspects for the Agriculture market.

Engineering & Computer/Inf. Systems:
Do you have an idea for an app (whether you are in Kinesiology or Food Science) and want to try your hand at development? The ***Mobile App Development From Concept to Market*** (16:137:601) course may be for you. While you need to have some familiarity about programming, there are special considerations given for those without programming knowledge but with great ideas. The objective of this course is to introduce the fundamentals of mobile app development, but more importantly provide the student with a complete top down overview of the mobile application marketplace and the opportunities that exist (and you get to design and implement your own app). This is a great course for those interested in IoT (Internet of Things) as the course goes over sensors and applications.

We also have – ***Fundamentals of Systems Engineering for Engineering Management*** (16:137:560). This course covers the design requirements of putting together a big project, a great course if you are interested in business analyst (BA role), systems engineering, UX, engineering management, software engineering, software management, product management or IT management. While some IT background is necessary, it is not too tech heavy and a perfect course for anyone who will eventually have to lead an IT project (even from the business perspective) or is part of a technology team (like UXD). This year we have formed a partnership with *IIBA (International Institute of Business Analysis)* and we will be using some of their curriculum for certifications. For information on job opportunities as a Business Analyst, see here.

One of our most highly related courses is ***Introduction to User eXperience Design (UXD)*** – how to design interfaces that are intuitive and easy to use. This course is taught in executive-style: one week intensive lectures (boot-camp) with extra weekend lectures. This is a "mind-changing" course emphasizing how to understand the user/stakeholder in designing modern interfaces and products. It is a great course for anyone in the IT or Analytics field and a must for those interested in product management.

Fundamentals of Analytics - 16:137:550, a very hot topic today covering fundamentals of data mining, analytics, machine learning and data sciences. *Please note, for the analytics course you must have at least one course in statistics and one in programming as prerequisites*. For those that want to take a basic programming course in python, the 16:137:552 **Python Methodologies for Data Science** course is available. This is a very popular hybrid course (taught every semester by "big lars") with mostly online lectures and some in person labs (these can be done online as well). This is suitable for every concentration – even if you have not programmed before. For those ready for a more advanced class, check out– *56:198:562 Big Data Algorithms* (streamed to New Brunswick), it will be covering algorithms in data mining and machine learning and especially how it relates to big data.

Internship/Special Problems – what is it?
We have three options for getting credit for doing internship or research projects, and they are:

16:137:605 Special Problems
16:137:611 Research Internship
16:137:608 Professional Internship

If you are doing a large project with a professor, please register for research internship. If you are working for an outside company, please use Professional Internship. In both cases, you will be part of a class (we will be contacting your supervisor for the final grade and to make sure you did a good job). You will also be required to do a presentation. The Special problems class is to be used for other types of projects (e.g., if you participated in externship).

All of these courses are basic courses appropriate for anyone with an IT/UXD/Engineering concentration and fundamental enough for anyone with a science/engineering background.

Are you interested in Cybersecurity – see the new course from Political Science, *16:790:575 Global Politics of Internet Security* (Saturdays 10-12.40). This looks to be a very interesting and multidisciplinary class covering cyber space, cybersecurity, policy, economics and regulation. And for a general overview of employment in cybersecurity, please see our blog here.

Special Permission Number: Many graduate courses require special permission numbers to check on prerequisites. Please read the following on who to contact about getting special permission numbers http://mbs.rutgers.edu/special-permission-number-request Note*:if you are interested in business courses, you must go through our office to get a special permission number. The form is on the web site above.*

Want to know some of the most popular (non 16:137) science courses for MBS students? They are: *(***see sidebar about special permission numbers)*

Regression Analysis (16:960:583) – important for analytics! This course is offered every semester (and summer), but needs a prerequisite basic stat class.

Database Programming and Management (17:610:577) - This is a fundamental course about databases (SQL, etc). It is a basic course and is suitable for all IT levels (and even for non-IT backgrounds).

Programming Finance (16:332:503) – An introductory course in C++ which also covers some basic data structures (linked lists). Exercises are related to financial programming.

Bioinformatics (16:765:585) – a basic course in bioinformatics and super-important for those in biotech & drug discovery.

Health Economics, Planning and Public Policy (34:832:515) - a course offered by the EJB School of Public Policy which covers the US healthcare issues. This course is great for those in Drug Discovery and a recommended elective for anyone working in bio/pharma/healthcare industry.

Quality Management (16:540:580)– this is a course offered by Industrial Engineering covers the basics of quality and reliability. Appropriate for all engineering, especially engineering management, and those working in the life sciences and bio/pharma area (biotech, drug discovery & development, personal care, food science). Quality Management is a popular area for many jobs in the NY/NJ area. This is a basic course appropriate for most of the concentrations.

Food Chemistry Fundamentals (16:400:513) – a core course for food science and a great elective for biotech, personal care, etc.

Sneak Peek at courses for Winter 2017:

- Business Intelligence with Visual Analytics - a Winter session course, suitable as a science or business elective, combining information visualization with tableau, and basic business intelligence. An important course for those in analytics and for many others!

PLEASE CHECK OUR EVENT LISTING!!! There are different types of events getting scheduled. These include:

- Technical Workshops – these are concentrated in teaching you about the latest in technology and are open to everyone! Want to learn SAS, STATA, R? Attend the workshops!
- Panel Discussion – these are usually around a concentration and our panelists are leaders in the field. Learn about career opportunities.
- Skill-Building Workshop(s) – want to hone your negotiation or networking skills? Look for the career workshops & networking opportunities and come to our career lunches!

Insider Report Pictorial – Focus on computing:

Do you want to learn more about computing?

You may have read or heard that the computing field is hot today. Yes, all of the companies do seem to want to hire students who know "computing/computer science/analytical computing". Whether that will be the trend in the future, we will have to wait and see. However, we do know that computers are not going away and having knowledge of technology is helpful for everyone. What does that mean? – You need to understand technology, how it works, how to configure it for your uses, and how to be comfortable getting your hands "dirty" with installing/scripting/programming. How do you learn that? One way is to increase your knowledge of programming. Below is a helpful guide to taking computing graduate courses (the courses below assume you do not have an undergraduate background). And all of these courses count as technical electives!

Guide: Start with a programming course (either one of the ones listed below, or learn on your own). While most of the courses here are aimed at undergraduates, there are a few that are for graduate students and can be taken for graduate credit. (Those are listed below: Python (from Rutgers Camden), C++ (New Brunswick).) If you can take one other – take the database course (17:610:557 - it can be used as a business elective as it is equivalent to business data management). To become a software specialists/ coder take: Basic programming, Data Structures, & Software Engineering. Then code away. As an aside – the data structures course (not to be confused with databases) is usually a key course for passing any online coding exams. Data structures is used for the tricky questions – so if you are starting out in data science or programming, the data structures course is crucial for landing that coveted job! Interested in starting your own web-based business: take UXD, Mobile App, and/or Systems Engineering. Are you already a coder? Skip to the advanced courses – and don't forget to take UXD & Systems Engineering – learn to create applications that stand out from the crowd!