INF 560: Data Informatics Professional Practicum
Dr. Herb Schorr
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Phone: 310.448.9991
RTH 220
Fall 2014 Syllabus

Time and Day of Week (3 Units)
Room XXX

Teaching Assistant: TBD
Office: TBD
Office Hours: TBD
Contact Info: TBD

IT Help:
Hours of Service:
Contact Info:

Professor’s Office Hours:
Wednesday 1:30 p.m. to 4:30 p.m. in RTH 220. Other hours by appointment only.
Students are advised to make appointments with the professor ahead of time in any event and be specific with the subject matter to be discussed. Students should also be prepared for their appointment by bringing all applicable materials and information.

Catalogue Description:
Student teams working on external customer data analytic challenges; project/presentation based; real client data, and implementable solutions for delivery to actual stakeholders; capstone to degree.

Expanded Course Description:
One of the fundamental principles of informatics science is the ability to live in the data. It is necessary to gain a level of immersion in the information environment to truly apply the diverse skill sets necessary to both become an effective analyst, and provide customers solutions to hard problems. While students will get a sense of this paradigm in many of the courses focused on knowledge and skill enhancement throughout their degree matriculation, the goal of this course is to combine previously learned capabilities and apply them against actual data sets, in real data environment, and toward solving
difficult challenges for an external stakeholder.

The Data Informatics Professional Practicum is a capstone experience designed to allow students exposure to the world of data analytics from the perspective of the organization. Students will work with external stakeholders on a project that answers an organizational problem.

Each semester, the Informatics program will partner with an external organization, which will pose a broad business requirement to the class. Students will team and propose projects around this requirement, and be responsible for delivering an informatics-based solution to the stakeholder.

This product will consist of a not less than 50 page report detailing the proposal, methods utilized in the analysis, the output from the analysis, and conclusions and recommendations based on the study. Students will also be responsible for a not less than 30-minute presentation on their project to the stakeholder.

A possible example of a capstone project would be: Google volunteers to be the external partner. They obviously are one of the main collectors and brokers of information in the world. One of their areas of philanthropic interest is disease monitoring. Google might pose the question “How can the data Google collects in general could be better utilized to inform on disease, or help mitigate disease, in various areas in the world?” It would be up to the student teams to proposal a project plan, design a study, implement the analysis, and report conclusions and recommendations.

**Learning Objectives**

Expected learning outcomes for students are:

- To understand how to apply the various engineering and business principles studied in Data Informatics curriculum toward solving an organizational challenge
- To handle difficulties associated with defining and organizing a realistic problem statement
- To manage impediments in obtaining information and approval
- To present and sell ideas to higher-level management
- To understand the importance of the need for a continuous exchange between engineers, management and employees in solving an existing problem, given a set of constraints
- To meet aggressive deadlines in a multidisciplinary team effort
- To improve project-based presentation skills, both in-class and in company
settings

- To understand the requirements and objectives of customers, how these vary, and how one must tailor a solution to the expectations of a customer
- To understand how informatics are viewed in diverse domains; and how solutions and approaches will differ in various fields
- To understand how to work with individuals from diverse domains (engineering, business, etc.) to accomplish a common goal

Students are expected to have foundational knowledge in data management, machine learning, data mining, and data visualization, as well as other topics associated with the Data Informatics degree program.

The course can be taken by students in the ISE Analytics program and/or the Marshall Business Analytics program (being created) as well as the Data Informatics program. Course is usually taken after other courses in the program.

This class will be primarily group work, with some assigned readings, and a major project and presentation that will count for the primary grade in the course.

**Methods of Teaching:**

The primary teaching methods will be discussion, case studies, lectures, and demonstrations. Students are expected to perform directed self-learning and group work outside of class that encompasses, among other things, a considerable amount of research.

The students are expected to take an active role in the course. Students will attend lectures, and schedule meetings with the instructor to review project progress. Students will perform a great deal of research and writing for the course. Students will also be required to form teams and rate peer performance on teamwork. The size of teams will be approved by the instructor.

There will be one major project. This will consist of a project report of not less than 50 pages. Students must also complete a presentation on their project that should be not less than 30 minutes in length.

Students are expected to meet with their instructors not less than three times per semester to review progress. Students must also email a monthly progress report the instructor by the 5:00 p.m. of the 20th calendar day of the month.

There will be no laboratory assignments, and no special computing facility, hardware or software will be necessary for this course.
Assignments/Reports/Project:

The major deliverable from this course is a written project report that reflects a proposed solution, and subsequent results, for an external stakeholder. At the first class meeting, the external partner will be introduced, and a problem/requirement posed. Students will then divide into teams. All projects are team projects. All topics will be unique, and there should be high levels of collaboration on the projects with team members and the professor. Students are required to meet with the professor not less than three times during the semester. Students are required to submit three progress reports throughout the course. There will be a midterm.

There will be three inputs to students’ final grades: 1) instructor evaluation; 2) peer review; and 3) evaluation by external stakeholder.

NO PROJECTS WILL BE ACCEPTED LATE, AND STUDENTS MUST PRESENT THEIR FINDINGS ON THE DAY SELECTED DURING THE SEMESTER.

Guidelines and additional information will be developed, which will provide a common vernacular for the assignments. It is crucial that students turn in whatever they have on the due date. NO assignment will be accepted late. An incompletes grade will be granted only under the conditions called out in the student handbook, SCAMPUS, which is available online, http://scampus.usc.edu.

Class Communication:

Blackboard at USC will be used for class communication.

Grading Schema:

Course Project Report (Includes peer reviews): 40%
Sponsor Review of Report, Presentation, and Findings: 20%
Course Project Presentation: 20%
Midterm: 10%
Participation, Progress Reports, and Instructor Meetings: 10%

Total 100%

Grades will range from A through F. The following is the breakdown for grading:

94 - 100 = A
90 - 93 = A-
87 - 89 = B+
84 - 86 = B
80 - 83 = B-
77 - 79 = C+
74 - 76 = C
70 - 73 = C-
67 - 69 = D+
64 - 66 = D
60 - 63 = D-
Below 60 is an F
Books and Readings:

All books, papers or reports will be available to students in one of three ways: 1) in the USC bookstore; 2) via a CD that the instructor will provide at the beginning of class; and/or 3) via the web.


Assigned Reading and Media List:


Eric Siegel, “Predictive Analytics: The power to predict who will click, buy, lie, or die,” Wiley, February 2013.


Class Structure & Schedule:

Class sequence, dates, topics and guest speakers are subject to change as the semester proceeds. Any revisions will be noted and announced in class in advance.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings/Notes</th>
<th>Homework</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Orientation,</td>
<td>The external sponsor will present and</td>
<td>Team</td>
</tr>
<tr>
<td>Week</td>
<td>Topic</td>
<td>Details</td>
<td>Notes</td>
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<tr>
<td>1</td>
<td>External Partner Introduction, Requirement Outline, Developing Project Ideas</td>
<td>challenge the class Post-class, teams will be formed, and proposals briefs (1-3 pages outlining “big idea”) will be completed</td>
<td>Formation, Project Selection, Proposal Briefs</td>
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<td>2</td>
<td>Lean Thinking, Deliverables, DMAIC, Analytics in the “real world”</td>
<td>Knöppel Chapters 1-5 Proposal Brief Review – schedule time with instructor</td>
<td>Proposal Briefs Due</td>
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<td>3</td>
<td>VSM, Quality, Variability, Role of the Analyst</td>
<td>Project Initiation; Prepare Monthly Report</td>
<td>NA</td>
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<td>4</td>
<td>Teams, People, Lean Engineering</td>
<td>Schedule Time to Meet with Instructor</td>
<td>First Monthly Report Due</td>
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<td>5</td>
<td>Understanding the Analytics Product in Business</td>
<td>Guest Lecturer on the topics of business analytics, and the expectation of the data analyst in the commercial space You must meet with your instructor this week to review monthly report</td>
<td>NA</td>
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<td>6</td>
<td>TPM, TOC</td>
<td>Project Work Time</td>
<td>NA</td>
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<td>7</td>
<td>Mid-Term Review</td>
<td>Half of class dedicated to mid-term review Remainder of class dedicated to project work</td>
<td>Mid-term review packet</td>
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<td>8</td>
<td>Mid-Term, Project Work Time</td>
<td>Mid-Term Schedule meeting with instructor</td>
<td>Second Monthly Report Due</td>
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<td>9</td>
<td>Stakeholder Session</td>
<td>Stakeholder will be in class to review progress, answer questions, provide presentation to class You must have had your second instructor</td>
<td>Instructor Meeting</td>
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<td>Date</td>
<td>Event Description</td>
<td>Details</td>
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<td>10</td>
<td>Project Research</td>
<td>No Class Time – Project Research</td>
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<td></td>
<td>Selection of Final Presentation Time:</td>
<td>You must have a time scheduled by Friday at 5:00 p.m. of this week of lose 5% of your grade on the presentation.</td>
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<td>11</td>
<td>Understanding the Analytics Product in Government</td>
<td>Guest Lecture on the topics of analytics or “Big Data” in the government. Special focus on the Intelligence Community and Department of Defense. Review expectations of the analyst in these spaces</td>
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<tr>
<td>12</td>
<td>Understanding the “Pitch”, selling ideas to clients, Reporting to Stakeholders</td>
<td>Schedule time to meet with instructor</td>
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<td>13</td>
<td>Dress Rehearsal</td>
<td>For those who desire, they will be able to go over their reports and presentations with the instructor, and receive feedback before presenting to the customer</td>
<td>You must have had your third instructor review meeting by the end of this week</td>
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<tr>
<td>14</td>
<td>Projects Due, Presentations Begin</td>
<td>All projects must be submitted on Monday of this week by 5:00 p.m.</td>
<td>Project Due Presentations Begin</td>
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<td>Presentations begin on Tuesday of this week.</td>
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<td>15</td>
<td>Presentations Continue</td>
<td>Presentations will conclude by Wednesday of this week at 5:00 p.m.</td>
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<td>16</td>
<td>Stakeholder Summit</td>
<td>Student presentations</td>
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**Students with Disabilities**
Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. Your letter must be specific as to the nature of any accommodations granted. DSP is located in STU 301 and is open 8:30 am to 5:30 pm, Monday through Friday. The telephone number for DSP is (213) 740-0776.

Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. SCampus, the Student Guidebook, (www.usc.edu/scampus or http://scampus.usc.edu) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

The University, as an instrument of learning, is predicated on the existence of an environment of integrity. As members of the academic community, faculty, students, and administrative officials share the responsibility for maintaining this environment. Faculties have the primary responsibility for establishing and maintaining an atmosphere and attitude of academic integrity such that the enterprise may flourish in an open and honest way. Students share this responsibility for maintaining standards of academic performance and classroom behavior conducive to the learning process. Administrative officials are responsible for the establishment and maintenance of procedures to support and enforce those academic standards. Thus, the entire University community bears the responsibility for maintaining an environment of integrity and for taking appropriate action to sanction individuals involved in any violation. When there is a clear indication that such individuals are unwilling or unable to support these standards, they should not be allowed to remain in the University.” (http://policies.usc.edu/p4acad_stud/facultyhandbook.pdf)

Academic dishonesty includes: (http://policies.usc.edu/p4acad_stud/facultyhandbook.pdf)

Examination behavior – any use of external assistance during an examination shall be considered academically dishonest unless expressly permitted by the teacher.

Fabrication – any intentional falsification or invention of data or citation in an academic exercise will be considered a violation of academic integrity.

Plagiarism – the appropriation and subsequent passing off of another’s ideas or words as one’s own. If the words or ideas of another are used, acknowledgment of the original source must be made through recognized referencing practices.

Other Types of Academic Dishonesty – submitting a paper written by or obtained from another, using a paper or essay in more than one class without the teacher’s express
permission, obtaining a copy of an examination in advance without the knowledge and consent of the teacher, changing academic records outside of normal procedures and/or petitions, using another person to complete homework assignments or take-home exams without the knowledge or consent of the teacher.

The use of unauthorized material, communication with fellow students for course assignments, or during a mid-term examination, attempting to benefit from work of another student, past or present and similar behavior that defeats the intent of an assignment or mid-term examination, is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tensions accompanying examinations. Where a clear violation has occurred, however, the instructor may disqualify the student’s work as unacceptable and assign a failing mark on the paper.

**Return of Course Assignments**

Returned paperwork, unclaimed by a student, will be discarded after a year and hence, will not be available should a grade appeal be pursued following receipt of his/her grade.

**Emergency Preparedness/Course Continuity in a Crisis**

In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.