

## JOMC 890 | Digital Data & Analytics | Syllabus

### **Instructor:**

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**Course Overview:** This course explores the fundamental concepts and principles that underlie techniques for extracting useful information and knowledge from digital data. The primary goal of the course is to help you view problems from a data perspective and understand how to systematically analyze such problems. This data-analytic thinking can then be applied in a variety of ways, from data journalism to customer relationship management to data-driven decision-making.

The course is conceptualized under the topic of "Data Studies" as defined by the UNC Chapel Hill Faculty Working Group on Data Studies Curriculum: "Data studies combines data acquisition, management, analysis, and use of data (including a level of technical competence appropriate for each student) with an understanding of the nature of data and its broader implications for society." Under this approach, the course will focus on technical data skills (acquire, manage, analyze, use) within a societal context.

This course takes a very hands-on approach. Using the Python programming language (no prior programming experience is necessary), you will develop the skills necessary to access and analyze the wide variety of digital data, structured or unstructured, available in the real world. You will learn to "scrape" data from Web sites, to interact with the Application Programming Interfaces (APIs) used by social media sites such as Facebook and Twitter, and to represent text for data mining.

### **Course Objectives:**

- To understand the types of questions that data can and cannot answer.
- To understand the ethical implications of accessing/using data.
- To learn the basics of the Python programming language. Using Python, you will learn to:
  - access and interact with data in a wide variety of formats.
  - transform and manipulate data, particularly unstructured data, into an analysis-ready format.
- To understand the basics of data analysis from basic statistical models to machine learning to natural language processing.
- Learn how to best communicate and present the results of your analysis.
- To understand how data are used in a variety of communication fields.

**Readings:** The primary text for this course is Think Python: How to Think Like a Computer Scientist by Allen B. Downey. The book is available for free as a PDF.

[Download text here.](#)

Additional readings come from a variety of sources and are made available via links on Sakai.

**Quizzes:** There are five interactive quizzes throughout the term. These quizzes are designed to help you understand important concepts from the readings and to reinforce the technical skills you are developing. Each quiz may be attempted up to three times, and the highest score among the three will be used for grading purposes. Quizzes account for 25% of your course grade (5% for each quiz).

**Homework:** There are five homework assignments throughout the term. Each is designed to allow you to demonstrate your understanding of a particular area of digital data and analysis along with your technical skills. Homework assignments account for 25% of your course grade (5% for each assignment).

**Project:** As a class, we will work through a data project from beginning to end. There will be five assessments of your work on this project during the semester. The Project accounts for 25% of your final grade (5% for each assessment).

**Discussion Participation:** You are expected to actively participate in the weekly discussion forums by sharing observations, insights, and questions with the instructor and other members of the course. The quality of your participation in the weekly discussion forums allows you and your fellow students to benefit from everyone's insights. Discussion participation accounts for a total of 25% of your course grade.

There are typically multiple threads of discussion in this course each week. The threads are typically open all week (8 a.m. EDT Monday through 7:59 a.m. EDT the following Monday).

The primary thread is related to the readings/videos/lectures for the week. The instructor typically poses a 'prompt' question/comment on this thread.

***You should participate in the primary thread each week with at least one substantive original post and at least one response post (responding to one of your classmates' posts).***

Secondary threads (may vary by week) include:

- A Python thread
- A quiz/homework thread
- A project thread
- Student-initiated thread(s)

***You should participate in at least one secondary thread each week with at least one substantive original post and at least one response post (responding to one of your classmates' posts).***

Your top 12 weekly discussion grades will be used to compute this component of your course grade. Discussion participation accounts for a total of 25% of your course grade.

It is expected that you will check in with the Discussion Board and read your classmates' posts even on (most) days that you do not post yourself. Early and/or late posts are not counted for grading purposes.

A weekly discussion grade of P can be earned by completing the required posts, demonstrating an understanding of the assigned material by both original posts and responses to other students.

A weekly discussion grade of H can be earned by increasing the quality (more so than the quantity) of your posts. H grades are reserved for those who bring high-quality additional information to the discussion, making connections that are not already made by the assigned readings, the instructor or classmates. These posts help others synthesize and apply the material and/or suggest new ways of examining the issue under consideration.

A weekly discussion grade of L can be earned by completing fewer than the required number of posts and/or by doing overly brief or superficial posts that fail to show an understanding and application of the assigned material.

A weekly discussion grade of F can be earned by not posting to the Discussion Board in any given week.

**Policy on Academic Integrity:** Students are expected to conform to the Honor Code in all academic matters. For more information on the Honor Code, please visit the following URL: <https://studentconduct.unc.edu/students>, or feel free to speak to your instructor or someone at the Office of the Student Attorney General or the Office of the Dean of Students.

**Seeking Help:** If you need individual assistance, it's your responsibility to contact the instructor. If you are serious about wanting to improve your performance in the course, the time to seek help is as soon as you are aware of the problem – whether the problem is difficulty with course material, a disability, or an illness.

**Diversity:** The University's policy on Prohibiting Harassment and Discrimination is outlined in the 2011-2012 Undergraduate Bulletin <http://www.unc.edu/ugradbulletin/>. UNC is committed to providing an inclusive and welcoming environment for all members of our community and does not discriminate in offering access to its educational programs and activities on the basis of age, gender, race, color, national origin, religion, creed, disability, veteran's status, sexual orientation, gender identity, or gender expression.

**Special needs:** If you have any disability or other special situation that might make it difficult to meet the requirements described above, please discuss it with me as soon as possible. If you have not done so already, you should also contact the Department of Accessibility Resources & Service (AR&S) at 919-962-8300 or [accessibility@unc.edu](mailto:accessibility@unc.edu).

### **Online Course Statement**

By enrolling as a student in this course, you agree to abide by the University of North Carolina at Chapel Hill policies related to the Acceptable Use of online resources. Please consult the Acceptable Use Policy (<http://help.unc.edu/1672>) on topics such as copyright, net-etiquette and privacy protection.

As part of this course you may be asked to participate in online discussions or other online activities that may include personal information about you or other students in the course. Please be respectful of the rights and protection of other participants under the UNC Chapel Hill Information Security Policies ([http://its.unc.edu/ITS/about\\_its/its\\_policies/index.htm](http://its.unc.edu/ITS/about_its/its_policies/index.htm)) when participating in online classes.

When using online resources offered by organizations not affiliated with UNC Chapel Hill, such as Google or Youtube, please note that the Terms and Conditions of these companies and not the University's Terms and Conditions apply. These third parties may offer different degrees of privacy protection and access rights to online content. You should be well aware of this when posting content to sites not managed by UNC Chapel Hill.

When links to sites outside of the unc.edu domain are inserted in class discussions, please be mindful that clicking on sites not affiliated with UNC-Chapel Hill may pose a risk for your computer due to the possible presence of malware on such sites. Online courses may at times require Web-based assignments that are public in nature and may be viewed by third parties online. This is especially true in social media and blogging platforms. Be mindful of the information you choose to share publicly as part of your assignments. Under the Federal Family Education Rights and Privacy Act of 1974 (FERPA) and UNC's FERPA regulation (<http://registrar.unc.edu/academic-services/policies-procedures/student-rights/>), a student's education records are protected from disclosure to third parties. However, FERPA protection does not extend to material shared publicly by students.

### **ACEJMC Values and Competencies**

The School of Journalism and Mass Communication's accrediting body outlines a number of values you should be aware of and competencies you should be able to demonstrate by the time you graduate from our program. Learn more about them here:

<http://www2.ku.edu/~acejmc/PROGRAM/PRINCIPLES.SHTML#vals&comps>

No single course could possibly give you all of these values and competencies; but collectively, our classes are designed to build your abilities in each of these areas. In this class, we will address the following values and competencies.

- Understand concepts and apply theories in the use and presentation of images and information;
- Demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
- Think critically, creatively and independently;
- Conduct research and evaluate information by methods appropriate to the communications professions in which they work;
- Apply basic numerical and statistical concepts;
- Apply tools and technologies appropriate for the communications professions in which they work.
- Contribute to knowledge appropriate to the communications professions in which they work.