CPSC 392 – Introduction to Data Science

**Spring 2020**

**Course Syllabus**

**Instructor:** Rao Hamza Ali ([raali@chapman.edu](mailto:estevens@chapman.edu))

**Lecture:**  M/W 2:30-3:45pm, Keck 130

**Office Hours:**  M/W 4:00-5:00pm, under the 1st floor stairs in Keck, and by appointment.

**Overview:** This course provides a survey of algorithms, tools, and techniques for computing with Big Data. Students will be exposed to fundamental concepts in data mining, machine learning, and information retrieval systems, with special emphasis on techniques for data visualization and analysis. Students will apply data mining algorithms to data sets from biology, chemistry, social media, and industry using several popular machine learning packages.

**Prerequisites:** Successful completion of CPSC 230 is required.

**Texts:** *Machine Learning: The Art and Science of Algorithms that Make Sense of Data,* Peter Flach. Cambridge University Press, 2012.

**Course Materials:** All course materials will be available via the course site on Blackboard. You should check Blackboard frequently for course announcements.

**Program Learning Outcomes:**

1. Students will have mastered the foundational principles of computing and problem solving
2. Students will be able to utilize design and implementation practices in traditional and emerging technology settings
3. Students will be able to present technical information in both oral and written formats

## Course Grade Breakdown

Letter grades in the class will be assigned according to the following breakdown:

|  |  |
| --- | --- |
| Grade | Letter Grade |
| 93+ | A |
| 90-92.9 | A- |
| 87-89.9 | B+ |
| 83-86.9 | B |
| 80-82.9 | B- |
| 77-79.9/73-76.9/70-72.9 | C+/C/C- |
| 67-69.9/63-66.9/60-62.9 | D+/D/D- |
| <60 | F |

## Participation and Quizzes

It is expected that students attend every lecture. Participation in these sessions will contribute to the final course grade. There may also be occasional quizzes on the reading and lecture material, which will count toward the participation grade. IF YOU MISS A QUIZ, YOU MAY NOT MAKE IT UP.

## Assignments

Homework assignments will consist of written problem sets or programming assignments. They will typically be due at 2:30 pm on the specified due date. For CPSC 392, no late work will be accepted.

## Exams

There will also be two in-class exam which must be taken on the dates specified. NO MAKEUP EXAMS WILL BE ADMINISTERED.

## Research Project

In place of a final exam, we will have a research project that will be 20% of your final grade. Throughout the semester, I will make several deadlines available leading to a presentation during finals week and a write-up that details your project.

You will be asked to pick a dataset and try to answer an interesting question by applying the techniques we learn in class. I will post more details on Blackboard later in the semester.

## Grading Percentages Breakdown (subject to change):

Attendance/Participation (quizzes, participation activities, etc.) 5 %

Assignments 25 %

Exam 1 25 %

Exam 2 25 %

Research Project 20 %

## Final Exam Time

Friday, May 22: 8:00 – 10:30 am

**Expectations and Technology:**

I expect that everyone will maintain a classroom conducive to learning. I like an informal atmosphere, but it must be orderly. Thus, everyone is expected to behave with basic politeness, civility, and respect for others. In particular, talking in class is okay if it’s part of a class discussion or with me. Private communications are not permitted, especially during exams. Neither are reading extraneous materials, using electronic equipment off task, or sleeping. As this is a Computer Science class, technology is allowed to aid in learning and understanding material. However, please do not use a personal device for any purpose unrelated to our class. All devices should be silenced. Cell phones should be put away. Suggestions for improvement are welcome at any time. Any concern about the course should be brought first to my attention.

## Chapman University’s Academic Integrity Policy

Chapman University is a community of scholars that emphasizes the mutual responsibility of all members to seek knowledge honestly and in good faith.  Students are responsible for doing their own work and academic dishonesty of any kind will be subject to sanction by the instructor/administrator and referral to the university Academic Integrity Committee, which may impose additional sanctions including expulsion.  Please see the full description of Chapman University's policy on [Academic Integrity](https://www.chapman.edu/academics/academic-integrity/index.aspx).

## Chapman University’s Students with Disabilities Policy

In compliance with ADA guidelines, students who have any condition, either permanent or temporary, that might affect their ability to perform in this class are encouraged to contact the Office of Disability Services. If you will need to utilize your approved accommodations in this class, please follow the proper notification procedure for informing your professor(s). This notification process must occur more than a week before any accommodation can be utilized. Please contact [Disability Services](http://www.chapman.edu/students/health-and-safety/disability-services/index.aspx) at (714) 516–4520 if you have questions regarding this procedure or for information or to make an appointment to discuss and/or request potential accommodations based on documentation of your disability. Once formal approval of your need for an accommodation has been granted, you are encouraged to talk with your professor(s) about your accommodation options. The granting of any accommodation will not be retroactive and cannot jeopardize the academic standards or integrity of the course.

## Chapman University’s Equity and Diversity Policy

Chapman University is committed to ensuring equality and valuing diversity. Students and professors are reminded to show respect at all times as outlined in Chapman’s Harassment and Discrimination Policy. Please review the full description of [Harassment and Discrimination Policy](http://www.chapman.edu/faculty-staff/human-resources/eoo.aspx). Any violations of this policy should be discussed with the professor, the Dean of Students and/or otherwise reported in accordance with this policy.

## Student Support at Chapman University

Over the course of the semester, you may experience a range of challenges that interfere with your learning, such as problems with friend, family, and or significant other relationships; substance use; concerns about personal adequacy; feeling overwhelmed; or feeling sad or anxious without knowing why. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. You can learn more about the resources available through Chapman University’s [Student Psychological Counseling Services](https://www.chapman.edu/students/health-and-safety/psychological-counseling/).

Fostering a community of care that supports the success of students is essential to the values of Chapman University.  Occasionally, you may come across a student whose personal behavior concerns or worries you, either for the student’s well-being or yours.  In these instances, you are encouraged to contact the Chapman University [Student Concern Intervention Team](https://www.chapman.edu/students/health-and-safety/student-concern/index.aspx) who can respond to these concerns and offer assistance. While it is preferred that you include your contact information so this team can follow up with you, you can submit a report anonymously.  24-hour emergency help is also available through Public Safety at 714-997-6763.

## Religious Accommodation

Religious Accommodation at Chapman University Consistent with our commitment of creating an academic community that is respectful of and welcoming to persons of differing backgrounds, we believe that every reasonable effort should be made to allow members of the university community to fulfill their obligations to the university without jeopardizing the fulfillment of their sincerely held religious obligations. Please review the syllabus early in the semester and consult with your faculty member promptly regarding any possible conflicts with major religious holidays, being as specific as possible regarding when those holidays are scheduled in advance and where those holidays constitute the fulfillment of your sincerely held religious beliefs.

## Changes

This syllabus is subject to change. Updates will be posted on the course website.