**Data Scholars Discovery:**

Experiential Learning and Project Support

**CS 198-830 (#33318)**

Room: 356B Barrows (D-Lab) Facilitators: Aaron Scherf ([aaron\_scherf@berkeley.edu](mailto:aaron_scherf@berkeley.edu))

Time: Thursday 5:00 - 6:30 PM Instructor of Record: David Harding

Office Hours: 12:00 - 1:00 PM Tu / Th

Office Hours Location: D-Lab Collaboratory

**Course Description:**

This course is a 1 unit seminar for students in the Data Scholars program and the Data Science Discovery program. This seminar meets for 1.5 hours, once per week. Students will attend the class and engage with other student scholars, program staff, and the student instructor weekly.

The course will feature workshops which require a brief reading or set-up prior to class meetings to prime students’ understanding of the material presented. These workshops consist of a lecture/lab format to introduce new material and then to reinforce concepts in a practical, application oriented methodology.

**Course Objectives**

* Students will explore topics in the field of Data Science to supplement their research
* Students will gain a practical understanding of how to implement their education in Data Science to real world applications through projects, group challenges, and workshops
* Students will discuss real world Data Science issues and form their own opinions

**Course Features**

* Mentorship and support from the student instructor on a weekly basis
* Academic and professional development support
* Assistance from student instructor and collaboration with peers on the Discovery research project
  + The Discovery research project is designed to be a hands-on application of the data science concepts you’ve learned. Everyone will partner with a faculty member or existing project team and contribute actively to their work
* Information on how to continue to engage with the Berkeley data science ecosystem
* Presentations from leading figures in data science, both on- and off-campus

**Requirements**

To earn 1 unit of academic credit and pass the course, each student enrolled will:

* Have no more than two unexcused absences, and no more than three absences total
* Actively participate in seminar discussions and Discovery project
* Submit a final report and complete a final presentation
* Score a minimum of 20 / 25 possible points

**Assignments/project reports**

* Career Planning Session - Due as Allotted (6 points possible)
  + Each student should schedule at least one office hours session with the facilitator to discuss their career plans, including academic objectives, post-graduation plans, a resume review, and personal objectives plan.
  + To receive full points, the student must submit the following:
    - Detailed list of 5 academic / career objectives for the semester with SMART intermediate goals to achieve them
    - 3-Year personal vision plan with major academic / career milestones
    - List of 7-10 individuals in student’s desired field whom they consider role models and could be feasibly contacted (other than project mentor)
  + Optionally, students are encouraged to submit their resume or CV if they would like feedback. Mock interviews are also available during office hours, if desired.
* Interim Report - Due 3/18 (4 points possible)
  + Minimum 3 page summary of project progress, introducing project, its significance, and the student’s intended contribution. The student should focus on expected challenges, opportunities for learning, the structure of the team and relationships with mentors, and planned deliverables from the semester. Including a timeline with specific project goals is highly recommended.
* Data Science Guide Contribution - Due 4/11 (6 points possible)
  + Make a significant contribution to the online [Data Science Guide](https://github.com/Data-Scholars-Discovery/Data-Scholars-Discovery.github.io). Each of the following activities will count as 1 of 6 possible points; students must get points from at least 3 categories to receive full credit:
    - Adding a new resource which the student can personally vouch for
    - Reviewing an existing resource and improving the description (or updating links, if any are broken)
    - Adding a template script file for an existing online resource
    - Improving the format of a site page on GitHub
    - Sharing the Guide with another group at Berkeley
    - Another useful contribution as suggested by the student
* Final Report - Due 4/22 (6 points possible)
  + Minimum 5 page summary of project (including figures), providing a description of the project objectives, its significance, the student’s contribution, and future plans for engagement with the subject. Focus on what you’ve learned through the project and how you will use that knowledge in the future!
* Final Presentation - Due 4/25 (3 points possible)
  + An opportunity to show off project progress to your fellow Data Scholars! The student should focus on concisely explaining the project and their role, discussing what they learned in a way that everyone can understand, and describing how they will use their project experience in the future.
  + Use of example code, websites, figures, etc. is highly encouraged. The more interactive and interesting the presentation, the better!

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| **Semester Schedule** | | |
| **Date** | **Seminar Topic** | **Outside Class** |
| **Week 1 (1/24)** | **No Meeting** | Pre-Semester Survey |
| **Week 1 (1/31)** | **Orientation** (Introductions, team building, Discovery Buddy, DS accessibility, team goals) | Form Teams and Choose Kaggle Data |
| **Week 3 (2/07)** | Launch Kaggle Case Challenge Team Project | Complete Kaggle Challenge with Team |
| **Week 4 (2/14)** | Kaggle Case Challenge Presentations and Learning Plans; Applying Data Science to Real World Issues | Online Learning: Intro GIS |
| **Week 5 (2/21)** | Spatial Data made Simple: Working with Tableau and QGIS with Aaron | Online Learning:  Select Courses of Interest |
| **Week 6 (2/28)** | Presentation from Dr. Karen Chapple (Urban Displacement Project) | Read Articles: Diversity in Data Science Primer |
| **Week 7 (3/07)** | Diversity in Data Science Discussion with Teresa Anderson from the Restorative Justice Center | Diversity in DS Week  & Online Learning:  Geocoding overview |
| **Week 8 (3/14)** | Workshop: Geospatial Data in Python using GeoPandas with Dr. Patty Frontiera | **Interim Report Due 3/18**  Online Learning:  Fast R from D-Lab |
| **Week 9 (3/21)** | Workshop: Machine Learning in R with Evan Muzzle | Online Learning:  Complete Courses |
| **Week 10 (3/28)** | **No Meeting** (Spring Break) | Enjoy the Break! |
| **Week 11 (4/04)** | Workshop: Deep Learning in R with Dr. Evan Muzzle (Subject to change based on Student Interest) | Online Learning:  Review Courses |
| **Week 12 (4/11)** | Presentation from (Industry Figure TBD) | **Data Science Guide Contribution Due 4/11** |
| **Week 13 (4/18)** | Final Discussion: Topic to be selected by students | **Final Report Due 4/22** |
| **Week 14 (4/25)** | **Final Presentations I** |  |
| **Week 15 (5/02)** | **Final Presentations II** |  |
| **Week 16 (5/09)** | RRR Week, No Meeting | Data Scholars Symposium, (Date TBD) |

**Final Notes**

1. Respect all other students at all times. Do your best to contribute to a supportive, positive learning environment in which no one is afraid to speak up, reach out, or ask questions.
2. As with every course here at Berkeley we follow the [Honor Code](https://teaching.berkeley.edu/berkeley-honor-code), which states that, “As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others.”

If you have any questions or concerns regarding these two topics, or if at any time you feel that the discussions are not living up to these expectations, please don’t hesitate to let me know.

As UC employees, all course instructors and tutors are Responsible Employees and are therefore required to report incidents of sexual violence, sexual harassment or other conduct prohibited by university policy to the Title IX officer. We cannot keep reports of sexual harassment or sexual violence confidential, but the Title IX officer will consider requests for confidentiality. There are confidential resources available to you, including the CARE Advocate Office (<http://sa.berkeley.edu/dean/confidential-care-advocate>), which serves survivors of sexual violence and sexual harassment.

If you need disability-related accommodations in this class, if you have emergency medical information you wish to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class or during office hours. For disability-related accommodations, you also need to obtain an accommodations letter from DSP (<http://dsp.berkeley.edu>) which will be sent directly to the professor.

Thank you all in advance for bringing your positive energy and collaborative spirit to the seminar! I’m looking forward to working with everyone over the coming semester and wish everyone the best of luck with their projects!