EAS 472 Environmental Projects
Spring 2022

Instructors: Profs. Kyle McDonald and Z. Johnny Luo
Emails: kmcdonald2@ccny.cuny.edu and zluo@ccny.cuny.edu
Time: Friday 9am – 12:20pm; **Office hours**: by appointment
Location: MR 1128 or on zoom when it's virtual (zoom link: https://ccny.zoom.us/j/84853648242)
Class Format: Hybrid. Details will be explained during the first class.

Description:

EAS472 is a senior-level capstone research project class taught by different EAS faculty members. This semester, it will be co-taught by Profs. McDonald and Luo. A number of small projects are available for students to select. Students will form self-organized groups and work on a project of their choice in consultation with the instructors. Upon completion of the project, each group will write up a report and make an oral presentation of their work to the EAS faculty at the end of the semester.

We will only lecture during the first couple of classes to introduce projects and give a short tutorial in computer programming. Students are expected to select their projects no later than the end of the 4th class (Feb 18 2022). After that, class time will focus on group discussion, status reporting on each group's weekly progress, and working with group member on the project. The instructors' role will be to provide guidance, organize discussions and check progress. Students will receive a weekly grade based on how you have accomplished your work in the prior week.

Grading:

- Weekly grade: 20%
- First Presentation (project proposal): 15%
- Second Presentation: 15%
- Final Presentation: 30%
- Final Report: 20%

Sample projects (The instructors will go over them in detail during the first two classes)

- (Luo) Cloud and precipitation variations as derived from satellite observations
- (Luo) Investigating the distribution of air pollutants from long-term commercial aircraft measurements
- (McDonald) Intercomparison of optical/IR aerial drone data with remote sensing imagery and ground measurements
- (McDonald) Derivation of wetlands inundation maps from aircraft-borne imaging radar data
- (McDonald) Comparison of multi-source remote sensing data for assessment of ecosystem biodiversity.

Skill kits: Because of the nature of the data analysis, programming skills are required for these projects. Python, Matlab, QGIS or similar level programming language is preferred. Excel is generally insufficient.

Schedule:

Week	Dates	EAS72 Topics	**Due dates & notes**
Week 1	Jan 28	Project introduction; Python tutorial	
Week 2	Feb 4	Project introduction; Python tutorial	
Week 3	Feb 8 (Tue)	Python tutorial; discussion	Friday Schedule
	Feb 11 (Fri)	No Class	
Week 4	Feb 18	Python tutorial; discussion	Team formation
Week 5	Feb 25	**First Presentation: project proposal** (goal, data, methods and expected outcomes)	Presentations will be graded (15 pts)
Week 6	Mar 4	Project progress updates & discussions	
Week 7	Mar 11	Project progress updates & discussions	
Week 8	Mar 18	Project progress updates & discussions	
Week 9	Mar 25	Project progress updates & discussions	
Week 10	Apr 1	Project progress updates & discussions	
Week 11	Apr 8	**Second Presentation** (goal, data, methods, and initial results)	Presentations will be graded (15 pts)
Week 12	Apr 15	No class (Spring Break)	
Week 13	Apr 22	No class (Spring Break)	
Week 14	Apr 29	Project progress updates & discussions	
Week 15	May 6	Preparation for final presentations	
Week 16	May 13	**Final Presentations**	Presentations will be graded (30 pts)
Week 17	May 20		Final report due (20 pts)