**Global Learning Initiatives Program Course Syllabus**

Please complete the following form in English. The information will be updated to the Global Learning Initiatives Program website for students’ reference. If you will be offering more than one course, please fill out one form per course offered. Examples in grey.

**Course Information**

|  |  |
| --- | --- |
| Course Name\*provide the **English** course name of the course.  | Environmental Analysis |
| Lecturer(s)\*provide the lecturers’ **English** name. If there are more than one lecturer, please indicate all lecturers in the column. | Yi-Hsueh Chuang |
| Course Description\*briefly describe the contents covered in the courses. | Students will be familiar with the concepts and principles of environmental sampling, sample pre-treatments, and (partial) instrumental analysis that are important for environmental scientists and environmental engineers. The topics for sample pre-treatments would cover a handful of sample extraction methods, and the instrumental analysis would cover a few chromatographic methods (GC, HPLC, IC) |
| Course Objectives\*list out knowledge or skills students should acquire upon completion of course. | Students will learn the fundamentals of analytical chemistry and analytical methods for micropollutants |
| Suggested Proficiencies(if any)\*list preferred knowledge or skills students should have before taking the course. | Fundamental chemistryOrganic chemistry |
| Reading List(if any)\*list out the textbooks, references, or other reading materials. | Fundamentals of Environmental Sampling and Analysis by Chunlong (Carl) Zhang |
| Grading Criteria\*how would the students be assessed during the course. | Midterm (or report): 40%Final exam (or report): 40%Final project report: 20%  |

**Course Schedule**

Please complete the following table with the dates and expected course topics. If there are more than one lecturers instructing the course, please also indicate the lecturer for each class.

|  |  |  |  |
| --- | --- | --- | --- |
| Class | Date (YYYY/MM/DD) | Course Topic | Lecturer |
| Week 1  |  | Chapter 1 Introduction to Environmental Data AcquisitionChapter 2 Basics of Environmental Sampling and Analysis | Yi-Hsueh Chuang |
| Week 2 |  | Chapter 3 Environmental Sampling Design | Yi-Hsueh Chuang |
| Week 3 |  | Chapter 4 Environmental Sampling Techniques | Yi-Hsueh Chuang |
| Week 4 |  | Chapter 5 Methodology and Quality Assurance/Quality Control | Yi-Hsueh Chuang |
| Week 5 |  | Chapter 6 Common Operations and Wet Chemical Methods in Environmental Laboratories | Yi-Hsueh Chuang |
| Week 6 |  | Chapter 7 Fundamentals of Sample Preparation for Environmental Analysis | Yi-Hsueh Chuang |
| Week 7 |  | Chapter 8 UV-Visible and Infrared Spectroscopic Methods PartII | Yi-Hsueh Chuang |
| Week 8 |  | Mid-term |  |
| Week 9 |  | Chapter 9 Atomic Spectroscopy | Yi-Hsueh Chuang |
| Week 10 |  | Chapter 10 Chromatography for environmental analysis | Yi-Hsueh Chuang |
| Week 11 |  | Chapter 12 Mass | Yi-Hsueh Chuang |
| Week 12 |  | Chapter 12 Mass | Yi-Hsueh Chuang |
| Week 13 |  | Lab-GCMS | Yi-Hsueh Chuang |
| Week 14 |  | Lab- UV-Vis | Yi-Hsueh Chuang |
| Week 15 |  | Lab- HPLC | Yi-Hsueh Chuang |