## Cover Sheet: Request 13127

**ENV 4112C Air Sampling and Analysis**

### Info

<table>
<thead>
<tr>
<th>Process</th>
<th>Course</th>
<th>New</th>
<th>Ugrad/Pro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Pending at PV - University Curriculum Committee (UCC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submitter</td>
<td>Barbi Jackson <a href="mailto:barbib@ufl.edu">barbib@ufl.edu</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Created</td>
<td>10/2/2018 10:29:31 AM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Updated</td>
<td>1/29/2019 2:07:32 PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description of request</td>
<td>Reinstate course to offer as technical elective for Spring 2019</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Actions

<table>
<thead>
<tr>
<th>Step</th>
<th>Status</th>
<th>Group</th>
<th>User</th>
<th>Comment</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Approved</td>
<td>ENG - Environmental Engineering Sciences 011910000</td>
<td>Chang-Yu Wu</td>
<td></td>
<td>11/15/2018</td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>Conditionally Approved</td>
<td>ENG - College of Engineering</td>
<td>Heidi Dublin</td>
<td>Conditionally approved pending comment made at last curriculum committee meeting. (Lab as a team/report individually)</td>
<td>1/4/2019</td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td>Approved</td>
<td>ENG - Environmental Engineering Sciences 011910000</td>
<td>Chang-Yu Wu</td>
<td>The syllabus has been revised that removed wording about lab as a team and ensured the university policy is followed.</td>
<td>1/7/2019</td>
</tr>
<tr>
<td>syllabus_ENV4932 (ENV4112C) 2019 spring</td>
<td>College standard</td>
<td>Jan022019.docx</td>
<td></td>
<td></td>
<td>1/7/2019</td>
</tr>
<tr>
<td>College</td>
<td>Approved</td>
<td>ENG - College of Engineering</td>
<td>Heidi Dublin</td>
<td>Approved by the HWCOE Curriculum Committee and Faculty Council</td>
<td>1/29/2019</td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Curriculum Committee</td>
<td>Pending</td>
<td>PV - University Curriculum Committee (UCC)</td>
<td></td>
<td></td>
<td>1/29/2019</td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statewide Course Numbering System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office of the Registrar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Academic Support System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No document changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catalog</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Notified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Status</td>
<td>Group</td>
<td>User</td>
<td>Comment</td>
<td>Updated</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>-------</td>
<td>------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No document changes</td>
<td></td>
</tr>
</tbody>
</table>
Course|New for request 13127

Info

Request: ENV 4112C Air Sampling and Analysis
Description of request: Reinstate course to offer as technical elective for Spring 2019
Submitter: Barbi Jackson barbib@ufl.edu
Created: 4/12/2017 2:27:28 PM
Form version: 1

Responses

Recommended Prefix ENV
Course Level 4
Number 112
Category of Instruction Advanced
Lab Code C
Course Title Air Sampling and Analysis
Transcript Title Air Sampling & Analys
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation n/a
Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3

Course Description The class will apply the physical and chemical principles to measurement of gaseous and particulate pollutants in ambient air.
Prerequisites ENV4101 Elements of Atmos Pollution
Co-requisites n/a

Rationale and Placement in Curriculum Reinstating course to offer as technical elective for Spring 2019
Course Objectives Through this course, the student will be able:
1) To describe the principles of gaseous and particulate monitoring systems
2) To measure the major air pollutants such as NOx, SO2, ozone, hydrocarbons, and particulate matter
3) To connect the measured data to the real world problems.
4) To interpret the data based on environmental conditions under QA/QC protocols
5) To design the monitoring and sampling systems for measuring air pollutants

Course Textbook(s) and/or Other Assigned Reading No textbook
Weekly Schedule of Topics Wk Date Topics comments Comments
1 Jan. 8 NOx calibration, ozone calibration, SO2 calibration
2 Jan. 15 Chamber data: NOx calibration, ozone calibration, SO2 calibration
Gas Data and Data process Report
3 Jan. 22 Hydrocarbons: GC/FID (calibration) Gas Data
4 Jan. 29 Application to mixed gases Gas Data process Report
5 Feb. 5 Aerosol generation:
Calculation of particle loss to reactor walls using SMPS and OPC data
Measurement of gas dilution by CCl4 data Aerosol and gas data (outdoor) Report
6 Feb. 12 Aerosol generation: PILS-IC and CCl4 dilution Aerosol data
7 Feb. 19 Application of PILS IC data to inorganic thermodynamic model to estimate aerosol
acidity and aerosol water content Interpretation of inorganic data Report
7 Feb. 26 Exam I
Mar. 5 & 7 Spring Break
8 Mar. 12 Denuder systems applied to ambient air: acid denuder, base denuder, and carbon denuder
Calibration of OC/EC
OC/EC of ambient aerosol with/without denuders Various denuders OC/EC data
Report
9 Mar. 19 Ambient data: OC/EC, SMPS, OPC, PILS-IC (major compositions: inorganics and organics (secondary and primary)) Ambient Data
Data collection for your project Report
10 Mar. 26 SOA formation (indoor pollutions): apply to OC/EC, SMPS, OPC, hydrocarbons Chamber Data
Data collection for your project Data
11 Apr. 2 SOA chamber experiment (mixture): apply to OC/EC, SMPS, OPC, hydrocarbons, and PILS-IC Chamber Data
Data collection for your project Report
12 Apr. 9 SOA formation: impactor-FTIR Aerosol Data Report
13 Apr. 16 Exam II
14 Apr. 24 Project presentation

Links and Policies 16. Requirements for class: attendance, report, 2 exams, and project

a. Attendance Policy, Class Expectations, and Make-Up Policy
This class is primarily laboratory-based and therefore attendance is expected. Your attendance in the class will count towards your grade. Absences will be excused consistent with university policies in the Graduate Catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation. Assignments will be accepted late only in accordance with university policies.
b. Lab activities and Report Policy
Throughout the semester, the student will write about how the data are collected and processed based on the QA/QC and environmental regulations. Students will also interpret the relevant atmospheric process of air pollutants.
• The lab activities will be performed as a team.
• A lab report will be submitted individually. The report is due at noon on Friday in the same week when the report is assigned. The lab report includes the objective, method, data, the process of data, QA/QC, interpretation of data, and application to atmospheric process of pollutants and environmental policy.
c. Midterm Exam Policy
There is no final. You have only two midterms. Each midterm exam is 1 hour 55 minutes and only covers the materials instructed prior to that exam. You need a calculator for exams and sharing calculator is not allowed. A make-up for the midterm will not be allowed except the case only with certified medical excuse (only one make-up exam).
Prohibited devices during exam include, but are not limited to:
• Cell phones or smartphones
• Audio players/recorders, tablets, laptops, notebooks, Google Glass, or any other personal computing devices
• Separate timers of any type
• Cameras or any other photographic equipment
• Any devices, including digital watches, that can be used to record, transmit, receive, or play back audio, photographic, text, or video content (with the exception of CD players used for Language with Listening Subject Tests only)
d. Project Policy
5% will be deducted for the late project report submitted on the same day after the last class, 10% for that submitted on the 2nd day, and 20% for that on the 3rd day. Any assignment submitted late for more than 3 days will NOT be accepted unless with a certified medical excuse or if it is agreed by Dr. Jang prior to the due time with reasonable explanation.
For projects, students can use the data obtained during class activities as well as participate on data collection with graduate students. For project, each student will process the data generated from fields
or chamber and interpret the processed data based on thermodynamic equilibrium processes and atmospheric evolution of air pollutants and the project outcome is individual.

Each individual should discuss the potential content with Dr. Jang and inform the project title (subject) till the due date in the schedule of this syllabus. To avoid multiple teams choosing the same topic, the first team to finalize the topic with Dr. Jang gets the right.

A 2-Page Proposal (1.5 line spacing, 12 Times New Romans, 1 inch margin on each side, letter size paper, no hand writing) should be submitted to Dr. Jang by the deadline specified in Schedule (due date in the schedule of this syllabus). A Project Presentation will be scheduled at the end of the semester.

A 15 Project Report (1.5 line spacing, 12 Times New Romans, 1 inch margin on each side, letter size paper, no hand writing) is also required (due date specified in Schedule). The final report should be reviewed by one other team before submitted to Dr. Jang. It is the team’s responsibility to arrange the review done before their submission, and the reviewers should sign on the draft (which should be submitted, too). In the report, the team should document how they respond to reviewer’s comments. 5% of your project’s final grade is based on the response to reviewer’s comments, and 5% of your project final grade is based on your review of other’s report. The purpose of this review is to get comments/suggestions from your classmates (regarding content, format, flow, etc), and you certainly should incorporate the comments/suggestions in the final version to be submitted. The weight of the grade: preliminary 2 page proposal 10%, final presentation 40% and final report 40%, review report by other team 5%, review of other project report 5%. Guidelines for the proposal/reports/presentation will be available at the course’s website.

17. Expectations for Honesty
Cheating is a very serious offense and will not be tolerated. All instances of cheating, no matter how minor it may seem to you, will be reported to the Dean of Students Office and prosecuted. The penalty for any instance of cheating is a grade of E for the semester. Actions that are considered cheating include, but are not limited to:
• Copying of homework solutions from another source or another student. Students are encouraged to work together to solve the homework, and thus it is expected that in some cases the homework solutions of two students will be the same. However, blatant copying can be identified and will be considered cheating.
• Copying from another student during an exam, or using disallowed resources (including programming information into a calculator) during an exam. Calculators will be spot-checked during exams.
• Plagiarism on written reports. Plagiarism is the practice of copying the text or ideas from other sources and presenting it as your own. A good explanation of plagiarism is available at https://tomprof.stanford.edu/posting/1178.
• Attempting to change answers or marked grades on homework assignments or exams after they have been graded and returned.
• Any other action which is an attempt to modify your grade for an assignment in a way that does not actually reflect your work or abilities.

18. Students Requiring Accommodations
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

19 Course Evaluation
Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at “https://evaluations.ufl.edu/evals”. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at “https://evaluations.ufl.edu/evals”.

20. University Honesty Policy
UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor
received unauthorized aid in doing this assignment.” The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

21. Software Use
All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

22. UF Counseling Services
Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services. Career Resource Center, Reitz Union, 392-1601, career and job search services.

23. Student Privacy
There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: http://registrar.ufl.edu/catalog0910/policies/ regulationferpa.html

Grading Scheme 14. Course Grade:

1. Reports 40%
2. 2 Midterm Exams 30%
3. Attendance 5%
4. Project/presentation 25%

15. Grading Scales

<table>
<thead>
<tr>
<th>grade</th>
<th>lower</th>
<th>upper</th>
<th>grade</th>
<th>lower</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>100</td>
<td>C</td>
<td>70</td>
<td>73</td>
</tr>
<tr>
<td>A-</td>
<td>87</td>
<td>89</td>
<td>C-</td>
<td>67</td>
<td>69</td>
</tr>
<tr>
<td>B+</td>
<td>84</td>
<td>86</td>
<td>D+</td>
<td>64</td>
<td>66</td>
</tr>
<tr>
<td>B</td>
<td>80</td>
<td>83</td>
<td>D</td>
<td>60</td>
<td>63</td>
</tr>
<tr>
<td>B-</td>
<td>77</td>
<td>79</td>
<td>D-</td>
<td>57</td>
<td>59</td>
</tr>
<tr>
<td>C+</td>
<td>74</td>
<td>76</td>
<td>E</td>
<td>0</td>
<td>56</td>
</tr>
</tbody>
</table>

Grading will follow the UF system rule.
Grade is NOT curved in this course and will not be rounded.
The grade is based on absolute evaluation. Thus, it is possible for all students in the class to get an A (or an E). Your grade does not depend on how other students perform in the classroom but absolutely on how well you do in the class.

“AC- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Instructor(s) Dr. Myoseon Jang
Air Sampling and Analysis
ENV4932 (4112C)  Section 13422

Class Periods:  W | Period 9 - 11 (4:05 PM - 7:05 PM)
Location:  MAE A 0327 for lecture  and BLK 411 for lab activities
Academic Term:  Spring 2019

Instructor
Dr. Myoseon Jang
Email: mjang@ufl.edu
Office phone number: 352-846-1744
Office room number: Black Hall 410
Course information:  https://lss.at.ufl.edu
Office hours: 3:00 pm – 7 pm on Wednesday

Teaching Assistant:
a. Name of TA and email: Han, Sanghee <s.han@ufl.edu>; Zhou, Chufan <zcfan323@ufl.edu>; Yu, Zechen <yuzechen@ufl.edu>
b. TA Office location: Black Hall 414
c. TA hour: 3:00 pm – 7 pm on Wednesday

Course Description
The class will apply the physical and chemical principles to measurement of gaseous and particulate pollutants in ambient air.

Course Pre-Requisites / Co-Requisites
Undergraduate coursework in organic chemistry or ENV4101.

Course Objectives:

Through this course, the student will be able:
1) To describe the principles of gaseous and particulate monitoring systems
2) To measure the major air pollutants such as NOx, SO2, ozone, hydrocarbons, and particulate matter
3) To connect the measured data to the real world problems.
4) To interpret the data based on environmental conditions under QA/QC protocols
5) To design the monitoring and sampling systems for measuring air pollutants

Materials and Supply Fees
None

Professional Component (ABET):
Credit Hours of engineering science
Relation to Program Outcomes (ABET):

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Coverage*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Solve problems</td>
<td></td>
</tr>
<tr>
<td>2. Design</td>
<td>Medium</td>
</tr>
<tr>
<td>3. Communication</td>
<td>Medium</td>
</tr>
<tr>
<td>4. Make judgments</td>
<td></td>
</tr>
<tr>
<td>5. Teamwork</td>
<td>Low</td>
</tr>
<tr>
<td>6. Conduct experiments</td>
<td>High</td>
</tr>
<tr>
<td>7. Acquire knowledge</td>
<td>Medium</td>
</tr>
</tbody>
</table>

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not part of the course.

Required Textbooks and Software

No textbook

Recommended Additional readings

Journal articles
Standard Operation Procedure (SOP) for instrumentation
SOP for data analysis
EPA manuals

Course Schedule

1) Calibration of NOx, ozone and SO2 monitors and applying calibration factors to data processes
2) Calibration of the response of the gas chromatography/Flame ion detector (GC/FID) for several hydrocarbons in the Teflon bag
3) Monitoring of the number, mass concentrations of particulate matter using scanning mobility particle sizer coupled with condensation particle counter (SMPS-CPC) and Optical particle counter (OPC) and application to particle wall loss based on the 1st order rate.
4) Sampling of aerosol with Particle-Into-Liquid-Sampler (PILS) and applying PILS samples to ion chromatography (IC) to measure inorganic species (sulfate, nitrate, ammonium, sodium etc.)
5) Applying inorganic data to the inorganic thermodynamic models to estimate aerosol acidity and hygroscopicity
6) Measurements of Organic carbon/Elemental carbon (OC/EC) in particulate matter using thermal/optical methods
7) Ambient air monitoring
8) Chamber air monitoring
9) Particle impaction and application to FTIR (interpretation of functional group using the actual samples)
10) Project
b. Schedule

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Topics</th>
<th>comments</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan. 9</td>
<td>NO\textsubscript{x} calibration, ozone calibration, SO\textsubscript{2} calibration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Jan. 16</td>
<td>Chamber data: NO\textsubscript{x}, ozone, and SO\textsubscript{2} calibration</td>
<td>Gas data and data process</td>
<td>Report by noon/Friday</td>
</tr>
<tr>
<td>3</td>
<td>Jan. 23</td>
<td>Hydrocarbons: GC/FID (calibration)</td>
<td>Gas Data</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Jan. 30</td>
<td>Application to mixed gases</td>
<td>Gas Data process</td>
<td>Report</td>
</tr>
<tr>
<td>5</td>
<td>Feb. 6</td>
<td>Aerosol generation: Calculation of particle loss to the reactor walls with SMPS and OPC data Measurement of gas dilution by CCl\textsubscript{4}</td>
<td>Aerosol and gas data (outdoor)</td>
<td>Report</td>
</tr>
<tr>
<td>6</td>
<td>Feb. 13</td>
<td>Inorganic aerosol generation: PILS-IC and CCl\textsubscript{4} dilution</td>
<td>Aerosol data</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Feb. 20</td>
<td>Application of PILS-IC data to inorganic thermodynamic model to estimate aerosol acidity and aerosol water content</td>
<td>Interpretation of inorganic data</td>
<td>Report</td>
</tr>
<tr>
<td>7</td>
<td>Feb. 27</td>
<td>Exam I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar. 6</td>
<td>Spring Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mar. 13</td>
<td>Denuder systems applied to ambient air: acid denuder, base denuder, and carbon denuder Calibration of OC/EC OC/EC of ambient aerosol with/without denuders</td>
<td>Denuders; OC/EC data</td>
<td>Report</td>
</tr>
<tr>
<td>9</td>
<td>Mar. 20</td>
<td>Ambient data: OC/EC, SMPS, OPC, PILS-IC (major compositions: inorganics and organics (secondary and primary)</td>
<td>Ambient Data Data collection for your project</td>
<td>Report</td>
</tr>
<tr>
<td>10</td>
<td>Mar. 27</td>
<td>SOA formation (indoor pollution): apply to OC/EC, SMPS, OPC, hydrocarbons</td>
<td>Chamber Data Data collection for your project</td>
<td>Data</td>
</tr>
<tr>
<td>11</td>
<td>Apr. 3</td>
<td>SOA chamber experiment (mixture): apply to OC/EC, SMPS, OPC, hydrocarbons, and PILS-IC</td>
<td>Chamber Data Data collection for your project</td>
<td>Report</td>
</tr>
<tr>
<td>12</td>
<td>Apr. 10</td>
<td>SOA formation: impactor-FTIR</td>
<td>Aerosol Data</td>
<td>Report</td>
</tr>
<tr>
<td>13</td>
<td>Apr. 17</td>
<td>Exam II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Apr. 25</td>
<td>Project presentation and final report</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Attendance Policy, Class Expectations, and Make-Up Policy
This class is primarily laboratory-based and therefore attendance is expected. Your attendance in the class will count towards your grade. Excused absences are consistent with university policies in the graduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) Excused absences require appropriate documentation. Assignments will be accepted late only in accordance with university policies.

Evaluation of Grades
a. Overall

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Total Points</th>
<th>Percentage of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports</td>
<td>100 each</td>
<td>40%</td>
</tr>
<tr>
<td>2 Midterm Exams</td>
<td>100</td>
<td>30%</td>
</tr>
<tr>
<td>Attendance</td>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>Project/presentation</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
b. Lab activities and Report Policy
Throughout the semester, the student will write about how the data are collected and processed based on the QA/QC and environmental regulations. Students will also interpret the relevant atmospheric process of air pollutants.

- A lab report will be submitted individually. **The report is due at noon on Friday in the same week when the report is assigned.** The lab report includes the objective, method, data, the process of data, QA/QC, interpretation of data, and application to atmospheric process of pollutants and environmental policy.

c. Midterm Exam Policy
There is no final. You have only two midterms. Each midterm exam is **1 hour 55 minutes** and only covers the materials instructed prior to that exam. You need a calculator for exams and sharing calculator is not allowed. A make-up for the midterm will not be allowed except the case only with certified medical excuse (only one make-up exam). Excused absence in exam is consistent with university policies in the graduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx)

**Prohibited devices during exam include, but are not limited to:**
- Cell phones or smartphones
- Audio players/recorders, tablets, laptops, notebooks, Google Glass, or any other personal computing devices
- Separate timers of any type
- Cameras or any other photographic equipment
- Any devices, including digital watches, that can be used to record, transmit, receive, or play back audio, photographic, text, or video content (with the exception of CD players used for Language with Listening Subject Tests only)

d. Project Policy
5% will be deducted for the late project report submitted on the same day after the last class, 10% for that submitted on the 2nd day, and 20% for that on the 3rd day. Any assignment submitted late for more than 3 days will **NOT** be accepted unless with a certified medical excuse or if it is agreed by Dr. Jang prior to the due time with reasonable explanation.

For projects, students can use the data obtained during class activities as well as participate on data collection with graduate students. For project, each student will process the data generated from fields or chamber and interpret the processed data based on thermodynamic equilibrium processes and atmospheric evolution of air pollutants and the project outcome is individual.

Each individual should discuss the potential content with Dr. Jang and inform the **project title** (subject) till the **due date in the schedule of this syllabus**. To avoid multiple teams choosing the same topic, the first team to finalize the topic with Dr. Jang gets the right.

A **2-Page Proposal** (1.5 line spacing, 12 Times New Romans, 1 inch margin on each side, letter size paper, no hand writing) should be submitted to Dr. Jang by the deadline specified in Schedule (**due date in the schedule of this syllabus**).
A Project Presentation will be scheduled at the end of the semester.

A 15 Project Report (1.5 line spacing, 12 Times New Romans, 1 inch margin on each side, letter size paper, no hand writing) is also required (due date specified in Schedule). The final report should be reviewed by one other team before submitted to Dr. Jang. It is the team’s responsibility to arrange the review done before their submission, and the reviewers should sign on the draft (which should be submitted, too). In the report, the team should document how they respond to reviewer’s comments. 5% of your project’s final grade is based on the response to reviewer’s comments, and 5% of your project final grade is based on your review of other’s report. The purpose of this review is to get comments/suggestions from your classmates (regarding content, format, flow, etc), and you certainly should incorporate the comments/suggestions in the final version to be submitted. The weight of the grade: preliminary 2 page proposal 10%, final presentation 40% and final report 40%, report review by other team 5%, review of other project report 5%. Guidelines for the proposal/reports/presentation will be available at the course’s website.

e. Expectations for honesty in report, exams, and project

Cheating is a very serious offense and will not be tolerated. All instances of cheating, no matter how minor it may seem to you, will be reported to the Dean of Students Office and prosecuted. The penalty for any instance of cheating is a grade of E for the semester. Actions that are considered cheating include, but are not limited to:

- Copying of homework solutions from another source or another student. Students are encouraged to work together to solve the homework, and thus it is expected that in some cases the homework solutions of two students will be the same. However, blatant copying can be identified and will be considered cheating.
- Copying from another student during an exam, or using disallowed resources (including programming information into a calculator) during an exam. Calculators will be spot-checked during exams.
- Plagiarism on written reports. Plagiarism is the practice of copying the text or ideas from other sources and presenting it as your own. A good explanation of plagiarism is available at https://tomprof.stanford.edu/posting/1178.
- Attempting to change answers or marked grades on homework assignments or exams after they have been graded and returned.
- Any other action which is an attempt to modify your grade for an assignment in a way that does not actually reflect your work or abilities.

Grading Policy

<table>
<thead>
<tr>
<th>Grade</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>A-</td>
<td>87</td>
<td>89</td>
</tr>
<tr>
<td>B+</td>
<td>84</td>
<td>86</td>
</tr>
<tr>
<td>B</td>
<td>80</td>
<td>83</td>
</tr>
<tr>
<td>B-</td>
<td>77</td>
<td>79</td>
</tr>
<tr>
<td>C+</td>
<td>74</td>
<td>76</td>
</tr>
<tr>
<td>C</td>
<td>70</td>
<td>73</td>
</tr>
</tbody>
</table>

Grading will follow the UF system rule. Grade is NOT curved in this course and is not be rounded. The grade is based on absolute evaluation. Thus, it is possible for all students in the class to get an A (or an E). Your grade does not depend on how other students perform in the class but absolutely on how well you do in the class.

“A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C-
average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement.

For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

**Students Requiring Accommodations**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

**Course Evaluation**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at “https://evaluations.ufl.edu/evals”. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at “https://evaluations.ufl.edu/evals”.

**University Honesty Policy**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

**Software Use**

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

**UF Counseling Services**

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.

Career Resource Center, Reitz Union, 392-1601, career and job search services.
**Student Privacy**

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html