



University of Puerto Rico – Mayagüez Campus  
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## COURSE SYLLABUS

### 1. General Information

Professor: Ubaldo M. Córdova-Figueroa  
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Course Title and Number: **Undergraduate Research INQU 4998**  
Website/Blog: <http://academic.uprm.edu/ucordova>  
Twitter: [@CordovaResearch](https://twitter.com/CordovaResearch)

### 2. Group Meetings

UCF Research Group meetings will be scheduled at the beginning of each semester. Each person must give a quick summary of the tasks performed in the previous week. In addition, all sub-groups must meet weekly with their respective graduate student mentor, team leader, or the professor to discuss progress. The graduate student mentor will guide your work during the semester. All group meetings are held in English. Attendance to group meetings is compulsory.

### 3. Blog participation

Students are encouraged to participate actively in the website blog by posting topics related to our research and educational activities. Each student must write at least two posts during the semester. Do not post something without the authorization of Prof. Córdova or graduate student mentor. Be creative; include references (avoid copyright issues!) and nice pictures/videos, and your contact information.

### Login access

username: `ucfresearchgroup`  
password: `cordovaresearch`

### 4. Trac

Trac is a minimalistic approach to web-based project management. Its goal is to simplify effective tracking and handling of issues, enhancements overall progress. All participating researchers of the group must use this service to record, monitor, and update their research progress. Trac also contains a Wiki, which should be use as Digital Research Notebook and to introduce relevant information for the group. Trac is managed by graduate student Misael Diaz.

Trac: <https://136.145.62.72:80/trac>

### 5. Digital Attendance Sheet

All participating researchers must fill the digital attendance sheet each time a research activity is carried out. The form is located in the group's website.

#### 6. Computer Access

The group has *Apple Mac Pro* OS X computer named *UCF Einstein*. It serves as storage facility for all our research-related documents. It also has MATLAB, Mathematica, IGOR, and other relevant software installed. To obtain an account, please contact graduate student Misael Diaz. Students conducting particle dynamics simulations will have to obtain accounts at the Chemical Engineering computer cluster and the UPR HPCf. For security and stability issues, all users must follow the computer cluster rules at all times. To receive the computer cluster rules and manual, also contact Misael Diaz. All data generated must be saved immediately and organized properly at *UCF Einstein* available disk storage or at Dropbox.

#### 7. Laboratory

The UCF laboratory is located at IQ-101-N. For access you need to contact graduate student Efrain Aymat at least one day in advance, he will open the facility for you. Visits from friends or unauthorized students are prohibited. An attendance list is located next to our hood. Each student must fill it in/out during each visit and give a description of the work accomplished that day. All samples and materials must be properly labeled and stored in the hood or fridge. Keep the lab clean at all times! Use the laboratory notebook to write your progress. The notebook will help others maintain record of the work previously done. Remember, the notebook cannot leave the lab unless Prof. Córdova and the rest of the group has been notified. A computer is also available and can be used only for research related tasks, such as literature research and report preparation.

#### 8. Reports and Presentations

All sub-groups must write and submit two reports during the semester. The first report must be submitted by mid-semester and the second one by the end of the semester (potentially during the period of final exams). If a sub-group does not submit the report on time, the whole group will have a No Satisfactory grade. Each week, a sub-group will give a presentation of their findings using the recommended layout discussed above. Use this opportunity to improve your English oral and writing skills.

**Project report:** Each sub-group must submit a report of no less than 20 pages including the following sections (if apply): an abstract (250 words or less), introduction (motivation, background, and objectives), experimental methods, necessary materials, problem formulation and theory, equations, experimental procedure, calculations developed to achieve the research objectives, conclusions, discussion, references (no less than 30 peer-reviewed papers), figures and tables, appendixes, etc. The sub-group must send an early draft to Prof. Córdova no less than one week in advance. The professor will reply you back with feedback and suggestions to improve your report in time for your final submission. The report must be submitted in English and in softcopy (**only LaTeX is accepted, no MS Word**). (Document specifications: **size 12, single space, Times New Roman or Arial**)

**Oral Presentation:** Each sub-group must present a 15-minute oral presentation. Prof. Córdoba must approve the content of the presentation. All tasks of the assigned research project must be explained and discussed in detail. A softcopy (PowerPoint or Keynote) must be emailed to Prof. Córdoba the day before the presentation.

Suggested presentation structure

- i. Title
- ii. Introduction (motivation, background, objectives)
- iii. Experimental Procedure or Problem Formulation
- iv. Results
- v. Discussion and Conclusion
- vi. Future work
- vii. References

9. Final Evaluation Grade for Undergraduate Students will be based on:

- Participation in group meetings (e.g., making questions, attendance)
- Publishing scientific posts in the UCF website/blog
- Developing and sharing with the group efficient strategies to conduct research
- Obtaining satisfactory review in the final report and oral presentation
- Attendance in laboratory and meetings with graduate student mentor
- Active participation in outreach activities, technical meetings, and conferences
- *Involvement:* the student remained on task throughout the project and did his/her fair amount of the work
- *Role:* the student performed all duties required for his/her role, contributing to the success of the group project
- *Communication:* he/she communicated with other group members and the instructor throughout the project, as required and beyond
- *Overall:* the member's effort throughout this group project was outstanding; you would want him/her to be part of your group again

10. New Members To Do List:

- Open a Dropbox and UCF Mac Pro account (file sharing and distribution). Ask to be included in your group respective shared folder.
- Subscribe to UCF Research Group Google Calendar (follow group agenda, meetings and deadlines). This can be found at the group's website.
- Make sure you have a computer and Internet access (quick communication purposes) at all times.
- If you need to contact Prof. Córdoba right away, send him an email.
- Schedule your agenda wisely, research is not a course, it is a professional job like any other!
- Train yourself to be highly productive. Read books about research management, writing scientific papers and presentations.

11. Graduate Students contact information

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