GMS 5905: Informatics for Pathology Practice and Research 3
Section 265A - Advanced Data Analysis & Visualization (Pandas)
Spring 2018 - 1 credit

Contact Information

Course Director

Srikar Chamala, Ph.D., Assistant Professor (Clinical Bioinformatics & Biomedical Informatics)

- Email: schamala@ufl.edu
- Phone: 352.265.9900, ext. 72272
- Office Location: 4800 SW 35 Drive, Gainesville, FL 32608

Class & Office Hours

- Held from March 26 to April 30, 2018
- Class meetings:
  - Tuesday, 12:00 PM to 1:30 PM: Room – D6-10 (Dental tower in the dental bldg, 6th floor)
  - OR
  - Thursday, 12:00 PM to 1:30 PM: Room – CG-56 (Communicore on the ground floor)

- Office Hours: Mondays and Fridays from 1:00 PM to 2:00 PM via Zoom Web meeting

TA

Ashish Katiyar
- Email: ashish.katiyar@ufl.edu

Course Information

GMS 5905 Informatics for Pathology Practice and Research series - Overview

The GMS 5905 Informatics for Pathology Practice and Research (IPPR) series is a set of 3 1-credit hands-on courses that will give a good background and working knowledge in three major aspects of informatics. –The first course, Section 25G1, covers the Unix Operating System and is offered from 1/8/18-2/12/18. –The second course, Section 264E, covers Python Programming and is offered from 2/12/18 – 3/26/18. The last course in the series, Section 265A, covers Advanced Data Analysis & Visualization and is offered from 3/26/18 – 4/30/18. All of these courses will use training data sets and examples from clinical settings. The courses are not co-requisites, which allows for individual registration based on discrete needs. After finishing this series, students will be able to build computing tools for laboratory operational analytics and data visualization, as well as solve "big data" research problems, in both clinical and basic sciences.
Informatics for Pathology Practice and Research 3 - Section 265A - Advanced Data Analysis & Visualization

This course is built upon the concepts learned in IPPR 2 and gets into advanced data analysis and visualization concepts using a very popular data science programming python library called Pandas.

- Week 1: Pandas Data Structures Exploration
- Week 2: Indexing, Filtering and Visualization of Data Structures
- Week 3: Methods on Data Frame/Series
- Week 4: More functions in Data Frames
- Week 5: Application

Course Goals

Upon successful completion of the course, the student will be able to:

1. Efficiently extract relevant information from Big Data sets for data exploration using Pandas and Python
2. Create data visualizations using Pandas and Python

Prerequisites and Requirements

- No prerequisites. I assume no knowledge of programming or computing
- Need to bring a laptop to the class for doing assignments
  - Laptop should be set up with UF Wi-Fi connection and test it prior to the class
- All the class material is provided. Below are the free eBooks that we will be using for the class, please download and keep a local copy.
- Course is primarily being offered for Dept. of Pathology members; however, it could be open to clinicians/researchers from other disciplines with the permission from course director

Course Offering Format

The class will be offered in flipped classroom format, where students will go through specific course materials online including videos and assigned readings prior to the class (ordered in a to do list format to maximize learning). During the class, students will apply the concepts they learned by practicing informatics exercises with the guidance of the instructor and peers. Attendees of this class includes full-time working professionals with busy schedules. To accommodate these diverse schedules the course is offered in two sections (one and half hours each), where same content would be taught in each of the sections. Attendees will be given the flexibility to attend any one (or even both) of the sections per week based on their needs and availability.

If you have difficulty accessing the course site or need other technical assistance contact the Help Desk at 352-392-HELP (4357) or helpdesk@ufl.edu.
Course Assignments - Point Distribution

There will be four types of course assignments due every week. See the below table for the point distribution. All of the assignments are **non-proctored and are open book/internet**. Assignments can be done by discussing with peers, however **direct copy and paste of others work is not allowed**.

- **Quizzes** – Every week there will be one quiz assignment, which will be due on Monday by 11:59 PM (with exception of first quiz) of the corresponding week. Material covered in the quizzes are from the material listed under "Before Class Assignments" section of that week. You will receive a second attempt to improve your score.

- **Before-class Exercises** – Every week there will be one before assignment (with exception of last week), which will be due on Monday by 11:59 PM (with exception of first week) of the corresponding week. Material covered in the before-class exercises are from the material listed under "Before Class Assignments" section of that week. Solution Python code must be executable (no failures) for points to be awarded (there will be no partial credit given).

- **In-class Assignment** – An assignment will be due every week on Friday by 11:59 PM. You will start working on this in-class with your peers, but you will likely need more time to complete it and can continue working with others outside of class time.

- **Peer Review** – Each of the submitted in-class assignments will be assigned to two students in the class for peer review which is due every Monday by 11:59 PM. Example, a student submits an in-class assignment by Friday, of the first week, which will be assigned to two students who will have to peer review within three days and submit it by Monday 11:59 PM.

**Note**: It is very important to complete "Before Class Assignments" list before the class as it will not only impact the score on the quizzes but also your ability to perform in-class exercises.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grade Calculation Explanation</th>
<th>Points Possible</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>5 Quizzes@40 points</td>
<td>200</td>
<td>Mondays by 11:59 PM</td>
</tr>
<tr>
<td>Before-class Exercises</td>
<td>4 Exercises@50 points</td>
<td>200</td>
<td>Mondays by 11:59 PM</td>
</tr>
<tr>
<td>In-class Assignment</td>
<td>5 Exercises@100 points</td>
<td>500</td>
<td>Fridays by 11:59 PM</td>
</tr>
<tr>
<td>Peer Reviews (2/week)</td>
<td>10 Peer Reviews@20 points per week</td>
<td>100</td>
<td>Mondays by 11:59 PM</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>1000</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Note**: Students will be notified of modified assignment due dates. Please check your Canvas portal for announcements on a regular basis.

**Grades**

Grade points is in accordance with UF policies:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Points (minimum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>900</td>
</tr>
<tr>
<td>Letter Grade</td>
<td>Points (minimum)</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------</td>
</tr>
<tr>
<td>B+</td>
<td>850</td>
</tr>
<tr>
<td>B</td>
<td>800</td>
</tr>
<tr>
<td>C+</td>
<td>750</td>
</tr>
<tr>
<td>C</td>
<td>700</td>
</tr>
<tr>
<td>D+</td>
<td>650</td>
</tr>
<tr>
<td>D</td>
<td>600</td>
</tr>
<tr>
<td>E</td>
<td>&lt;600</td>
</tr>
</tbody>
</table>

**Policies**

**Attendance and late work**

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: [https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx](https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx). Late work will only be accepted with prior instructor approval.

**Disabilities**

“Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, 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.

**Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university’s counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database

- Student Complaints: [https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)
Honor 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 (http://www.dso.ufl.edu/scr/process/student-conduct-honorcode/) 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.

Online Course Evaluations

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. 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/results/.