Franck Soh, Ph.D.

ISM 210: Principles of Business Analytics
Course Syllabus for Fall 2021 (note that some changes are possible)

Professor: Dr. Franck Soh
Office: 489 Bryan Building
Email: f_sohnoume@uncg.edu
Course Meeting Time: Friday 10:45am to 12:00pm
Office Hours: Friday 12:30 to 1:30pm or by Appointment

➢ Course Description:
Principles of Business Analytics introduces students to advanced techniques in the use of business computing applications, including spreadsheets, database systems, and linkage between applications to enhance productivity. Students study how end-user applications are managed and contribute to the business.

➢ Course Description (Refined Version)
The course will focus on manipulating, processing, cleaning, and crunching data in Python. Students will learn Python programming language and its data-oriented libraries to analyze structured data including tabular or spreadsheet-like data, multidimensional arrays (matrices), and multiple tables of data interrelated by key columns. As an introductory course to business analytics, the emphasis will not be on data analysis methodology, but on Python programming, libraries, and tools.

➢ Course Goals
Upon successful completion of this course, students will learn:
• The basics of Python language, and Jupyter Notebooks
• Python built-in data structures, and functions
• Numerical computing with NumPy
• Data loading and storage with Pandas
• Data cleaning and preparation with Pandas
• Data wrangling and aggregation with Pandas
• Data visualization with matplotlib, pandas, and seaborn
• The basics of data modeling with Patsy and statsmodels

➢ Textbooks
• Our text is Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython (2nd Edition)
  o ISBN: 9781491957660
• E-book
  o https://ebookcentral.proquest.com/lib/uncg/detail.action?docID=5061179
• You can also purchase the book from O’Reilly, eBooks, or Amazon (about $60)
  o https://www.oreilly.com/library/view/python-for-data/9781491957653/
  o https://www.amazon.com/_/dp/1491957662?tag=oreilly20-20
• Book data and code Notebooks
• Author's website
  o https://wesmckinney.com/

➢ Programming Environment
  • The Jupyter software is needed
    o All UNCG students can use Jupyter through https://kangaroo.uncg.edu (you need your iSpartan ID to log in)
    o You can also install the Jupyter server on your local machine for FREE
      ▪ JupyterLab or Jupyter Notebook
      ▪ https://jupyter.org/index.html
      ▪ https://www.anaconda.com/products/individual
  • Tools to distribute code and assignments
    o JupyterHub (https://kangaroo.uncg.edu)
      ▪ JupyterLab or Jupyter Notebook
    o Jupyter nbviewer (view code)
      ▪ https://nbviewer.jupyter.org/
    o GitHub classrooms (optional)
      ▪ https://classroom.github.com/
    o Jupyter nbgrader
      ▪ Grading purposes
    o Binder (Share code)
      ▪ https://mybinder.org/

➢ Canvas Learning Management System
UNCG Canvas is available at https://canvas.uncg.edu. Course materials, announcements, and updates will be posted on Canvas regularly. Please check canvas daily for announcements, discussions, and materials. You will be responsible for any information or announcements provided to you through emails and for any updates on Canvas. Please, note that we may also use GitHub to share code.

➢ Prerequisites
  • at least a C in ISM 110
  • at least a C in MAT 115

➢ Participation
Students are expected to regularly discuss their progress in the course and participate in discussions using the topic/assignment specific discussion boards on Canvas.

➢ Assignments
Programming and application development assignments constitute a significant aspect of your skill development in this course. Students are required to complete each assignment.

All projects must be completed by you and outside of class. They are due at 11:59 pm on the assigned due date unless otherwise announced. Projects submitted after their due dates may be accepted without a penalty based on valid reasons and documented cause, following discussion with the instructor. If no valid reason or documentation is provided, late projects will have a 10%-point deduction/day. Late projects will be accepted up to 4 business days after the due date only.

Franck Soh, Ph.D. 2
➢ **Exams**

- *Exams will be administered only once.* If a documented emergency develops and you miss an exam, there may be an alternative at the discretion of the instructor.

➢ **Grading**

The grading includes:

- 10 assignments - 1 assignment for each chapter
  - Each assignment is 60 points
- 1 midterm exam
  - 100 points
- 1 final exam
  - 100 points
- 1 final project
  - 200 points

The course grade will be calculated using the following points:

<table>
<thead>
<tr>
<th>Elements</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Assignments</td>
<td>600</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Final Project</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100</td>
</tr>
<tr>
<td>90-92.9</td>
</tr>
<tr>
<td>87-89.9</td>
</tr>
<tr>
<td>83-86.9</td>
</tr>
<tr>
<td>80-82.9</td>
</tr>
<tr>
<td>77-79.9</td>
</tr>
<tr>
<td>73-76.9</td>
</tr>
<tr>
<td>70-72.9</td>
</tr>
<tr>
<td>60-69.9</td>
</tr>
<tr>
<td>Below 60</td>
</tr>
</tbody>
</table>

**Please Note:**

- Grades in the ISSCM Department are NOT posted and are NOT given over the phone. You may check your grades on UNCGenie within 3-4 days after the final exam.
- Questions concerning the grading of an assignment, exam, or project must be resolved within a reasonable time (typically one week) after the grade has been posted in Canvas. After that period, all grades are final.

➢ **Tentative Schedule**

A flexible schedule of topics and reading assignments is provided below and on Canvas. You are responsible for checking the schedule, coming to class prepared, and finding out if in-class assignments were made in case of your absence. The chapters are assigned in the schedule, and additional reading may be provided occasionally.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Class Topics</th>
<th>Readings &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/16-20</td>
<td>Introduction to the development environment</td>
<td>No Reading</td>
</tr>
<tr>
<td>2</td>
<td>8/23-27</td>
<td>Python language basics</td>
<td>Chapter 2 Assignment I</td>
</tr>
<tr>
<td>3</td>
<td>8/30-9/3</td>
<td>Python built-in data structures, and functions Assignment I (Due 9/5)</td>
<td>Chapter 3 Assignment II</td>
</tr>
<tr>
<td>Week</td>
<td>Dates</td>
<td>Content</td>
<td>Assignment/Due Dates</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>9/6-10</td>
<td>Introduction to Numpy</td>
<td>Assignment II (Due 9/12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 4 Assignment III</td>
</tr>
<tr>
<td>5</td>
<td>9/13-17</td>
<td>Introduction to Pandas</td>
<td>Assignment III (Due 9/19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 5 Assignment IV</td>
</tr>
<tr>
<td>6</td>
<td>9/20-24</td>
<td>Review of Chapters 2 – 5</td>
<td>Assignment IV (Due 9/26)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapters 2 - 5</td>
</tr>
<tr>
<td>7</td>
<td>9/27-10/1</td>
<td>Midterm Exam</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10/4-8</td>
<td>Data loading, storage, and file format</td>
<td>Assignment V</td>
</tr>
<tr>
<td>9</td>
<td>10/11-15</td>
<td>Data cleaning and preparation</td>
<td>Assignment V (Due 10/17)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 7 Assignment VI</td>
</tr>
<tr>
<td>10</td>
<td>10/18-22</td>
<td>Data wrangling</td>
<td>Assignment VI (Due 10/24)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 8 Assignment VII</td>
</tr>
<tr>
<td>11</td>
<td>10/25-29</td>
<td>Plotting and visualization</td>
<td>Assignment VII (Due 10/29)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 9 Assignment VIII</td>
</tr>
<tr>
<td>12</td>
<td>11/1-5</td>
<td>Data aggregation and group operations</td>
<td>Assignment VIII (Due 11/7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 10 Assignment IX</td>
</tr>
<tr>
<td>13</td>
<td>11/8-12</td>
<td>Introduction to modeling libraries</td>
<td>Assignment IX (Due 11/14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapter 13 Assignment X</td>
</tr>
<tr>
<td>14</td>
<td>11/15-19</td>
<td>Review of Chapters 6 – 13</td>
<td>Assignment X (Due 11/21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chapters 6 – 10 and 13</td>
</tr>
<tr>
<td>15</td>
<td>11/22-26</td>
<td>Thanksgiving</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>11/29-12/3</td>
<td>Final Exam</td>
<td></td>
</tr>
</tbody>
</table>

*The day may be used to compensate for delays in the class chapters.

**Changes to the Syllabus/Schedule**

The syllabus and schedule are tools to help you plan your time. Every effort is made to make the syllabus and schedule as complete as possible, but there may be occasions when changes are required, including changes in the grading components, due dates, and exam dates. The instructor will announce any deviations from the syllabus or schedule in class.

**Extra credits**

There are few options to earn extra credits through assignments, final project and/or exams. Later this semester, I will describe the assignments, final project and/or exams with the associated extra credits.

**Make-up Exam Policy**

It is to your advantage to take all exams at the scheduled times. Only in the case of a well-documented true emergency should an exam be missed. Please be sure to get your instructor’s prior approval for all but emergency cases. Students with university-related or requested absences, e.g., field trips in other courses or multiple exams during finals week, must make prior arrangements in advance for any conflicts with their schedule and due dates for the course. **Exams missed without the prior approval of your instructor or without adequate documentation of the reason for missing the exam will result in a recorded grade of zero for the missed exam.**

**Grading Impact of Possible Class Disruptions**
This section is about the impact of possible disruptions on your course grade. Rather than waiting for disruptions to happen, and then having to inform you how those are going to affect your grade, we want to tell you in advance how your course grade may be affected by possible disruptions. For example, what would happen if we have too many disruptions so we cannot complete all course assignments? What if we must cancel the project?

If any course individual projects and exams are canceled (either by the instructor or the university), the course grade will be based on the exams, and projects that have been completed in the course. The percentage cut-offs listed in the course syllabus will change.

➢ **Attendance Policy for University Sponsored Events**

Regular class attendance is a responsibility and a privilege of university education. It is fundamental to the orderly acquisition of knowledge. Students should recognize the advantages of regular class attendance, accept it as a personal responsibility, and apprise themselves of the consequences of poor attendance. Instructors should stress the importance of these responsibilities to students, set appropriate class attendance policies for their classes, and inform students of their requirements in syllabi and orally at the beginning of each term.

ISM210 will meet on Friday from 10:45 am to 12:00 pm beginning the week of August 16. It is the student’s responsibility to attend class online and to participate in class discussions. It is the student’s responsibility to stay on track with readings and assignments to be successful in the course. Because this is an interactive class, learning depends on attendance. Online attendance at all class meetings is expected. Information about upcoming assignments, including changes in deadlines and submission dates, may be discussed in class. If you must miss a class, you are responsible for finding out about assignments announced that day. Having missed a class will never be accepted as an excuse for missing a course requirement.

➢ **e-Mail**

- Always include a subject line.
- Remember without facial expressions some comments may not be interpreted accurately. Take care to word your emails. The use of emoticons might be helpful in some cases.
- Use standard fonts.
- Do not send large attachments without permission.
- Special formatting such as centering, audio messages, tables, Html, etc. should be avoided unless necessary to complete an assignment or other communication.
- Respect the privacy of other class members

➢ **Netiquette**

The same guidelines that apply to traditional classes should be observed in the virtual classroom environment. Please use proper netiquette when interacting with class members and the professor.

➢ **Policy on Server Unavailability or Other Technical Difficulties**

The university is committed to providing a reliable online course system for all users. However, in the event of an unexpected server outage or any unusual technical difficulty which prevents students from completing a time-sensitive assessment activity, the instructor will extend the time windows.
Students with technical issues with the course and email should contact 6TECH for support either by email or phone or chat (https://its.uncg.edu/Help/6TECH/). Please also make your instructor aware of the issue, and if there will be any delays in resolving the issue.

➢ **What you Need to Take this Course**
- Textbooks. JupyterLab, Jupyter Notebook, and a GitHub account are optional.
- You must have access to a computer that connects to the Internet. The course materials are only accessible online by logging in to canvas.uncg.edu – your student identification number is required. If you do not own a computer, the computer labs on campus might be open during this semester.
- You must have a working e-mail account. Please, make sure your e-mail address on the course Web site is up to date.
- Because of e-mail viruses, you must use the subject ISM210 and your full name typed in the message, or the e-mail may be ignored.
- If you have questions, please do not respond to a Canvas Announcement, rather send me a direct email.
- You must check your e-mail account regularly throughout the semester. Official announcements will be made by e-mail and on the course Web site at canvas.uncg.edu.
- You are responsible for saving all assignments correctly, so you can turn them in electronically. You should be comfortable using word processing software, programming software, and have reasonable keyboarding skills. No assignments will be accepted in handwritten form.
- Supplies: Although you will be publishing (uploading) your assignments, it is a good idea to keep copies of everything.

➢ **Written Communication Content**
Information Systems involves a dynamic environment with constant attention to changes. Effective and professional written communication is stressed through the required assignments.

E-mail: Each student has been assigned an e-mail account by the IRC. Students will be expected to activate their e-mail accounts and to use electronic mail. An excellent way to receive help on homework assignments is for students to attach the file in question to an e-mail and send it to the instructor.

➢ **IMPORTANT: Academic Integrity Policy**
Discussing your assignments with other students can be a valuable learning resource; however, each student is expected to do their original work. By submitting an assignment, each student is acknowledging their understanding and commitment to the Academic Integrity Policy on all major work for the course. Refer to the following URL: https://osrr.uncg.edu/academic-integrity/. If you have questions about how this policy applies to this course or an assignment, then please see me.

*Students should NOT make, borrow, or “share” copies of their assignments or files with other students, including previous ISM 210 students. Helping one another is allowed, but copying, even electronically, is cheating.* This practice is against the UNCG Academic Integrity Policy and defeats the purpose of this course. No credit will be received for shared work, and other penalties may be imposed.

➢ **Accommodations for Students with Disabilities**
UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must connect with the Office of Accessibility Resources and Services (OARS) in 215 Elliott University Center, (336)334-5440, oars.uncg.edu. The student is to provide a written request for each test accommodation to their instructor (an e-mail will suffice provided you have received a reply from the instructor). Both the requests to the OARS and to the instructor are to be made at least ten school days before the test date.

➢ **Health and Wellness Statement**
Your health impacts your learning. Throughout your time in college, you may experience a range of health issues that can cause barriers to your learning. These might include physical ailments, illnesses, strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these or other issues you may be experiencing. You can learn about the free, confidential mental health services available on campus by calling 336-334-5874, visiting the website at [https://shs.uncg.edu/](https://shs.uncg.edu/) or visiting the Anna M. Gove Student Health Center at 107 Gray Drive. Help is always available.

➢ **Religious Obligations Statement**
It is expected that instructors will make reasonable accommodations for students who have conflicts due to religious obligations. Please make arrangements with the instructor in advance of any conflict. For more information on UNCG’s Religious Obligations policy, visit: [https://drive.google.com/file/d/0B3_J3Uix1B4UeTV4Nk1vVFJoVFE/view?resourcekey=0-zRdXEmUA6rRl2RzKqo6u3g](https://drive.google.com/file/d/0B3_J3Uix1B4UeTV4Nk1vVFJoVFE/view?resourcekey=0-zRdXEmUA6rRl2RzKqo6u3g)

➢ **COVID-19 Spartan Shield Video**
UNCG Chancellor Frank Gilliam has challenged us to create a Culture of Care at UNCG where we all wear face coverings and social distance, less to protect ourselves but rather more to protect everyone around us. It shows that you care about the well-being of everyone around you. We have created this video featuring your student body presidents to better explain how and why this is so important.

Please watch this video before the first day of classes.
[https://youtu.be/Mb58551qxEk](https://youtu.be/Mb58551qxEk)

➢ **Expectations of Faculty and Students in the Bryan School**
Bryan Faculty and students in this course are expected to adhere to the guidelines stated at this link: [https://bryan.uncg.edu/wp-content/uploads/2017/08/Faculty-and-Student-Guidelines-2018-2019.pdf](https://bryan.uncg.edu/wp-content/uploads/2017/08/Faculty-and-Student-Guidelines-2018-2019.pdf)