

Course Syllabus for CGS 3126 Spring 2020 Semester

General Information	
Course Number/CRN	CGS 3126 / CRN 13755
Course Title	Tools for Data Analytics
Semester/Year	Spring/2020
Offering College/ Department	Lutgert College of Business (LCOB)/Information Systems and Operations Management (ISOM)
Credit Hours	3
Meeting Times/Location	The class meets on Tuesdays and Thursdays (1:30 - 2:45 PM) at Lutgert Hall 2212. Final Exam on Tuesday, April 28 th (12:30 – 2:45 PM) Additional learning activities and assignments on the CANVAS Learning Management System at http://canvas.fgcu.edu .
Is this a DL Course?	No. There will be face-to-face meetings.
Method of Delivery	In-class sessions and Internet activities
Course URL	http://canvas.fgcu.edu
Prerequisites	CGS 1100 with a minimum grade of C
Instructor Information	
Instructor	Anurag Agarwal, Ph.D., Professor, ISOM department at LCOB; Florida Gulf Coast University
Office Location	3347 Lutgert Hall
Phone Number	239-745-4352
E-Mail Address	aagarwal@fgcu.edu
Office Hours	Tuesdays and Thursday 10 AM to 12:30 PM
<p style="color: red;">Important Note: All faculty members are required to use Canvas to confirm a student's attendance for each course by the end of the first week of classes. Failure to do so will result in a delay in the disbursement of your financial aid. The confirmation of attendance is required for all students, not only those receiving financial aid. Every student must complete a mandatory activity in Canvas during the first week, which is the "Introduce Yourself" discussion forum in this course.</p>	
Course Information	
Description	<p><u>Catalog Description of the Course</u></p> <p>The course introduces the student to programming and scripting tools used in data analytics to process data and text. Tools currently include Python, Julia, R, and SAS but are subject to change as new tools become popular.</p> <p>In this course, students will learn some programming and how programming is used to do some Data Analytics.</p>
Student Learning Outcomes	<p>After successfully completing this course, students will be able to:</p> <ol style="list-style-type: none"> Recognize different types of data <i>Supports LCOB Learning Outcomes:</i> Content/Discipline Knowledge and Skills and Critical Thinking Skills <i>Assessment Methods:</i> Assignments, Quizzes, Exams <ul style="list-style-type: none"> • Types of Data • Univariate, Bivariate and Multi-variate data

	<p>3. Demonstrate knowledge of Excel VBA as a tool for Analytics <i>Supports LCOB Learning Outcomes:</i> Content/Discipline Knowledge and Skills and Critical Thinking Skills. <i>Assessment Methods:</i> Assignments, Quizzes, Exams</p> <ul style="list-style-type: none"> • Python IDLE, Anaconda, Jupyter Notebook • Variables • Conditional Control Structures • Iterative Control Structures • Functions and Subroutines <p>4. Demonstrate knowledge of the fundamentals of programming language Python as a tool for analytics <i>Supports LCOB Learning Outcomes:</i> Content/Discipline Knowledge and Skills and Critical Thinking Skills. <i>Assessment Methods:</i> Assignments, Quizzes</p> <ul style="list-style-type: none"> • Lists, Dictionaries and Tuples • Control Structures • Modules and packages • Analytics Packages in Python <p>5. Demonstrate knowledge of the fundamentals of programming language Julia as a tool for analytics</p> <ul style="list-style-type: none"> • Arrays, Dictionaries and Tuples • Control Structures • Analytics Packages in Julia <p>6. Demonstrate knowledge of the fundamentals of scripting language R as a tool for analytics</p> <ul style="list-style-type: none"> • Variables • Data Frames, Lists • Functions • Analytics Packages in R <p>7. Demonstrate knowledge of the software package SAS as a tool for analytics</p> <ul style="list-style-type: none"> • Variables • SAS interface • Basic Analytics
Required Materials	Required Textbook: None. All free, open source materials provided on Canvas.

	<p>Required Software:</p> <ul style="list-style-type: none"> • Internet access and web browser • PDF reader such as Adobe Acrobat Reader (http://get.adobe.com/reader/) • Microsoft Word, Excel, Power Point. • Python (open source) • Anaconda, Jupyter Notebook (open source) • Julia (open source) • R-Studio (open source) • SAS (available for FGCU students) • Use http://aets.fgcu.edu/vlab.asp for various software. 																																				
<p>Course Topics</p>	<ul style="list-style-type: none"> • Types of Data • Excel VBA • Python as a tool for Analytics • R as a tool for Analytics • Julia as a tool for Analytics • SAS as a tool for Analytics 																																				
<p>Grading Policy</p>	<table border="1" data-bbox="516 884 922 1108"> <tr> <td>Assignments</td> <td>120</td> </tr> <tr> <td>Quizzes</td> <td>60</td> </tr> <tr> <td>Final Exam</td> <td>30</td> </tr> <tr> <td>Behavior and Attitude</td> <td>10</td> </tr> <tr> <td>Total</td> <td>220</td> </tr> </table> <p>Grading Policy: Grading Policy below will be strictly applied. (e.g. 69.99 will be a D).</p> <table border="1" data-bbox="516 1255 922 1833"> <thead> <tr> <th>Letter Grade</th> <th>Score Range</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>100 - 93%</td> </tr> <tr> <td>A-</td> <td>< 93 - 90%</td> </tr> <tr> <td>B+</td> <td>< 90 - 87%</td> </tr> <tr> <td>B</td> <td>< 87 - 83%</td> </tr> <tr> <td>B-</td> <td>< 83 - 80%</td> </tr> <tr> <td>C+</td> <td>< 80 - 77%</td> </tr> <tr> <td>C</td> <td>< 77 - 73%</td> </tr> <tr> <td>C-</td> <td>< 73 - 70%</td> </tr> <tr> <td>D+</td> <td>< 70 - 67%</td> </tr> <tr> <td>D</td> <td>< 67 - 63%</td> </tr> <tr> <td>D-</td> <td>< 63 - 60%</td> </tr> <tr> <td>F</td> <td>< 60%</td> </tr> </tbody> </table>	Assignments	120	Quizzes	60	Final Exam	30	Behavior and Attitude	10	Total	220	Letter Grade	Score Range	A	100 - 93%	A-	< 93 - 90%	B+	< 90 - 87%	B	< 87 - 83%	B-	< 83 - 80%	C+	< 80 - 77%	C	< 77 - 73%	C-	< 73 - 70%	D+	< 70 - 67%	D	< 67 - 63%	D-	< 63 - 60%	F	< 60%
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	<p>There will be 12 assignments worth 10 points each. There will be 7 quizzes worth 10 points each. The lowest quiz score will be dropped. Quizzes will be conducted online. You will be required to use a web cam and mic during the quiz. We will be using Respondus Lockdown Browser and Respondus Monitor for the quizzes.</p> <p>The Final Exam will be in the class on Tuesday, April 28th.</p> <p>No extra credit or additional assignments: Please be aware that FINAL GRADES FOR THIS COURSE ARE FINAL. No extra credit or additional assignments are available at the end of the course.</p> <p>Turnitin.com: Students who take this class must prepare electronic copies of some or all assignments to submit them to Turnitin.com for the detection of plagiarism. The University expects that all students will be evaluated and graded on their own work. If you use language, data or ideas from other sources, published or unpublished, you must take care to acknowledge and properly cite those sources. Failure to do so constitutes plagiarism. Papers that are submitted to Turnitin.com become part of the Turnitin.com student paper database solely for the purpose of detecting plagiarism.</p> <p>“Credit hour” statement (developed by the LCOB): For each credit of a class, you should expect to spend one hour in class and an average of 2 hours preparing outside of class each week. Therefore, since this is a 3-credit class, you should plan to devote an average of nine hours a week to this class.</p>
<p>Policy regarding missed exams and assignment completion deadlines</p>	<ul style="list-style-type: none"> • Per policy, no make-ups for missed exams are administered (except for authorized and excused absences specified in the university catalog). A student who seeks an authorized or excused absence must submit documentation (such as a physician’s note) to the instructor in a timely manner. See the university catalog for more information. • All assignments are due on Thursdays at 11:59 p.m. If the assignment is late up to 24 hours, a 10% penalty will be imposed. If late between 24 to 48 hours, a 25% penalty will be imposed. If late between 48 to 72 hours a 50% penalty will be imposed. Beyond 72 hours, the assignment will not receive any grade. • However, for authorized and excused absences as specified in the university catalog I will consider giving credit for late assignments, on a case by case basis. A student who seeks an authorized or excused absence must submit documentation (such as a physician’s note) to the instructor in a timely manner. See the university catalog for more information. • Unfortunately, "dropped by the University for not paying the full tuition" is not an authorized and excused absence as specified in the university catalog.

	<ul style="list-style-type: none"> An emergency situation such as unavailability of or inaccessibility to CANVAS due to network problems will be considered by the instructor on a case by case basis. Students must submit documentation (such as a screenshot of error messages) to the instructor in a timely manner.
Statement on e-mail usage in Eagle Mail and CANVAS email	<p>It is best to use CANVAS mail for the course. However, you may use my work email address (aagarwal@fgcu.edu) also using your Eagle Mail account.</p> <p>Students are expected to check Canvas mail and Eagle Mail on a daily basis.</p>
Last Day to withdraw	<p>Be aware that Friday, March 27 is the last day to withdraw from class without academic penalty. 5 p.m.</p>
Disclaimer	<p>Assignments, schedules & due dates, instructions, and other course information presented in Canvas are integral components of the course material and are hereby incorporated as part of this syllabus. The instructor reserves the right to change, modify, alter, or transform any part of this syllabus, provided only that notice thereof is given to or at any party or parties that are thereby affected, subject to the rules and regulations of Florida Gulf Coast University.</p>

University Statements

Academic Behavior Standards and Academic Dishonesty

All students are expected to demonstrate honesty in their academic pursuits. The university policies regarding issues of honesty can be found in the FGCU Student Guidebook under the Student Code of Conduct and Policies and Procedures sections. All students are expected to study this document which outlines their responsibilities and consequences for violations of the policy. The FGCU Student Guidebook is available online at <http://studentservices.fgcu.edu/judicialaffairs/new.html>.

Sanctions for academic dishonesty may include receiving an “F” in this course – FGCU may impose additional penalties.

Any incidents of academic dishonesty may be referred to the FGCU Office of Judicial Affairs. Please look up the definition of plagiarism – it includes copying something off the Internet & submitting it as your own work.

Some examples of what is **not acceptable**:

- Working with another student & turning in the same work (e.g. spreadsheet, database, etc.)
- Emailing or posting your work to let someone else “just see how you did it”.
- Copying someone’s assignment or copying something from a book or the Internet.
- Giving or receiving help from someone (in person, online or on the phone) during an online test.
- Telling someone else what is on a test. Examples of what is **acceptable**:
 - Discussing how to approach an assignment with another student.
 - Showing someone where they might have made a mistake on an assignment.
 - Asking the professor for help.

University Nondiscrimination Statement

Florida Gulf Coast University is committed to ensuring equity and fairness for all University employees, students, visitors, vendors, contractors and other third parties. As such, the University prohibits discrimination on the bases of race, color, national origin, ethnicity, religion, age, disability, sex (including sexual harassment/assault), gender identity/expression, marital status, sexual orientation, veteran status or genetic predisposition with regard to admissions, employment, programs or other activities operated by the University. This prohibition extends to enforcement of Title IX of the Education Amendments of 1972. Questions or complaints should be directed to the Office of Institutional Equity and Compliance (OIEC). The OIEC’s phone number is (239)745-4366; the OIEC email address is OIEC@fgcu.edu.

Disability Accommodations Services

Florida Gulf Coast University, in accordance with the Americans with Disabilities Act and the university’s guiding principles, will provide classroom and academic accommodations to students with documented disabilities. If you need to request an accommodation in this class due to a disability, or you suspect that your academic performance is affected by a disability, please see me or contact the Office of Adaptive Services. The Office of Adaptive Services is located in the Wellness Building. The phone number is 239-590-7956 or Video Phone (VP) 239-243-9453. In addition to classroom and campus accommodations, individuals with disabilities are encouraged to create their personal

emergency evacuation plan and FGCU is committed to providing information on emergency notification procedures. You can find information on the emergency exits and Areas of Rescue Assistance for each building, as well as other emergency preparedness materials on the Environmental Health and Safety and University Police Department websites. If you will need assistance in the event of an emergency due to a disability, please contact Adaptive Services for available services and information.

Student Observance of Religious Holidays

All students at Florida Gulf Coast University have a right to expect that the University will reasonably accommodate their religious observances, practices, and beliefs. Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances. Where practicable, major examinations, major assignments, and University ceremonies will not be scheduled on a major religious holy day. A student who is to be excused from class for a religious observance is not required to provide a second party certification of the reason for the absence.

Counseling and Psychological Services (CAPS) provides free counseling and therapy services (including psychiatry) to all FGCU students. Please walk in to the second floor Howard Hall office any week day between 8:30 and 4:30 to schedule an initial contact appointment. Visit the CAPS website at www.fgcu.edu/caps for more information. CAPS offers a 24/7 Helpline at (239) 745-3277 (EARS).

How To Log Into the Course in CANVAS

- If you have not already done so, activate your FGCU EagleMail Account. Your FGCU EagleMail account MUST be activated to log in to CANVAS. If you are a first-time student, you will need your PIN and Eagle ID, both of which are assigned at registration.
 - If you don't know your PIN, you will need to go to the Registrar's Office to retrieve it. To activate your account, visit <http://icarus.fgcu.edu:8080/EagleMail/UpdateAccount.jsp?mode=activate>.
- Log in to CANVAS at <http://canvas.fgcu.edu>. You need to use FGCU EagleMail account and password to log in.

Click "Courses". ○ Select CGS 3126

Tentative Schedule

Week	Day	Dates	Topics	Due Dates
1	Tue	01/07/20	Introduction Fundamentals of Data Types of Data	
	Thu	01/09/20	Excel VBA (Variables, Data Types, Conditional Structures)	
2	Tue	01/14/20	Excel VBA – Iterative Control Structures	Quiz-1
	Thu	01/16/20	Excel VBA – Functions and Subs	Assign-1 due
3	Tue	01/21/20	Excel VBA -- Applications	
	Thu	01/23/20	Python (Variables, Lists, Tuples)	Assign-2 due
4	Tue	01/28/20	Python (Dictionaries, Control Structures)	Quiz-2
	Thu	01/30/20	Python (Functions)	Assign-3 due
5	Tue	02/04/20	Python (Classes)	
	Thu	02/06/20	Python (Classes)	Assign-4 due
6	Tue	02/11/20	Python (Classes)	Quiz-3
	Thu	02/13/20	Python (Modules and Packages)	Assign-5 due
7	Tue	02/18/20	Python (Pandas for Analytics)	
	Thu	02/20/20	Python (Pandas for Analytics)	Assign-6 due
8	Tue	02/25/20	Python (Pandas for Analytics)	Quiz-4
	Thu	02/27/20	Python (Numpy, Scipy)	Assign-7 due
9	Tue	03/03/20	Spring Break (No Class)	
	Thu	03/05/20	Spring Break (No Class)	
10	Tue	03/10/20	Julia (Arrays, Dictionaries, Tuples)	
	Thu	03/12/20	Julia (Control Structures)	
11	Tue	03/17/20	Julia (Functions)	Quiz-5
	Thu	03/19/20	Julia – Analytics packages	Assign-8 due
12	Tue	03/24/20	Julia – Analytics packages	
	Thu	03/26/20	R (Variables, lists, Data Tables)	Assign-9 due

13	Tue	03/31/20	R (Vectors and Matrices)	Quiz-6
	Thu	04/02/20	R (Control Structures)	Assign-10
14	Tue	04/07/20	R (Analytics Packages)	
	Thu	04/09/20	R (Analytics Packages)	Assign-11
15	Tue	04/14/20	SAS - fundamentals	Quiz-7
	Thu	04/16/20	SAS – user interface	Assign-12
16	Tue	04/21/20	SAS - analytics	
	Thu	04/23/20	SAS - analytics	
17	Tue	04/28/20	Final Exam (in class)	