FIGS: Exploring Computer Science

01:090:120:30
Tuesday, 11:30am – 12:50pm
Scott Hall -214, College Avenue Campus
Fall 2016

Instructor: Rush Sanghrajka
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Office Hours: Tuesday, 1:00pm – 2:20pm, Tables next to Gerlanda's, College Avenue Student Center, College Avenue Campus.

Course Description:

Welcome to FIGS: Exploring Computer Science. This one-credit seminar is designed to support students in their transition to college through the mentorship and guidance of an upper-class Peer Instructor. Students will have the opportunity to connect with others with similar interests and discover, strive to understand, and seize the limitless possibilities available at Rutgers University. Through intentional exploration of majors available to undergraduate students interested in a specific area of study, students will explore what they can do to set themselves up for successful careers at Rutgers and beyond. Students will learn about the importance of leadership experiences, research opportunities, relationships with faculty members, and connections with the Rutgers community.

Course Goals:

- Students will connect with other first-year students and mentors (Peer Instructor, faculty, administrators, upper-class students, etc.) and understand the importance of these relationships to their success at Rutgers.

- Students will know how to access the services and resources available at Rutgers (e.g. libraries, health services, learning centers, academic advising, etc.) and learn how to use them effectively in order to help further their intellectual growth and career goals.

- Students will be comfortable with, and understand the importance of, sharing their perspectives in the collegiate setting through respectful dialogue, inquiry and debate.

- Students will learn about issues and topics related to Computer Science in an effort to explore and consider options within the academic discipline of their choosing and inform their path at Rutgers University.

Course Requirements/Policies

Attendance and Participation: This seminar will only meet 10 times throughout the semester. Participation is vital in order to gain the most benefit from this course. FIGS courses are based upon the exchange of ideas and information between instructor and students, therefore, participation is expected and attendance is mandatory. Attendance in class is required, but does not constitute "participation." Engaged students participate in class by attending class, showing up on time prepared (completing assignments and required readings), listening to the ideas of others, sharing their own ideas, and practicing respectful class behavior. Absence due to a legitimate excused reason (medical, family emergency, religious observance) must be communicated via email prior to class when possible and

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students may be asked to provide documentation. Please note that attendance on the last day of class (when final group projects are presented) is required to receive credit for the FIGS course. **Students with more than two absences (excused <u>and</u> unexcused) or absent on the final day of class will receive an NC on their transcript to indicate "no credit" earned for the FIGS course.**

- *Lateness*: Students are expected to be on time for class.   Students arriving late will receive a reduction in attendance points for the day (see Attendance & Participation point breakdown on page 3).

- *Late Assignments*: All assignments are expected to be submitted on time. For each day the assignment is late, there will be a 1 point deduction in the grade.

- *Cell phone and laptop usage*: Use of cell phones and text messaging is prohibited. Non-compliance will result in reduction of class participation points. Such behavior is disrespectful to both the instructor and other students. In addition, students will not be expected to take regular notes in this course or reference online material, so laptops are not necessary.

- *Academic Integrity*: Academic integrity is essential to the success of the educational enterprise and breaches of academic integrity constitute serious offenses against the academic community. Students are responsible for understanding the principles of academic integrity fully and abiding by them in all their work at the University http://academicintegrity.rutgers.edu/ ©2008, Rutgers, The State University of New Jersey, All rights reserved **Students in FIGS must cite the sources they use in papers, presentations, and all other assignments regardless of length.**

- *Accommodating Students with Disabilities*: Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: https://ods.rutgers.edu/students/documentation-guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: https://ods.rutgers.edu/students/registration-form

Grading

This is a 1-credit seminar. It is graded PASS/NO CREDIT. In order to pass this course, students must receive at least 70 points. The point breakdown is as follows:

Attendance & Participation	40 points
Assignment: RIOT Tutorial	10 points

Assignment: Event Reflection Paper	10 points
Assignment: One Step Ahead	10 points
Final Group Project	30 points
Total	100 points

Attendance & Participation Point Breakdown:

- o Students will have the opportunity to earn up to 4 points per class; 2 for attendance, and 2 for participation. Attendance points will be earned by being on time for class and remaining until the end of class. Participation points will be earned by contributing to class discussions, being involved in classroom group work, and actively listening. Arriving late to class will result in the loss of one attendance point. Arriving more than ten minutes after the start of class will result in the loss of all attendance points for the day; however, students will still have the opportunity to earn participation points. Please note that attendance on the last day of class (when final group projects are presented) is required to receive credit for the FIGS course.

Course Readings/Materials

There are no required textbooks for this course. Students will be responsible for the following readings:

- SQL Quiz, (n.d)
  Retrieved June 28, 2016, from http://sqlzoo.net/wiki/SELECT_Quiz
  In-class

- Blackwell, Stacy. (2015). *Content Literacy: A Brief Introduction.* Pedagogy 01:090:320 Fall 2015.
  In-class

- SDLC - Quick Guide. (n.d.). Retrieved June 28, 2016, from http://www.tutorialspoint.com/sdlc/sdlc_quick_guide.htm
  In-class

- Riedl, M. O., & Bulitko, V. (2013, March 22). Interactive Narrative: An Intelligent Systems Approach. AI Magazine.

Assignment Details

Assignments will be submitted online (on the course Sakai site in the "Assignments" tab), unless otherwise specified. Sakai assignments must be sent in by 8:00am on their due date (for example, if the

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due date for an online assignment is September 14, then it must be turned in on Sakai by 8:00am on September 14). Any hard copy assignments should be brought to our class period on the day it is due.

1. RIOT (10 points)

   Complete all 5 modules of the RIOT (Research Information Online Tutorial) which can be found at http://www.libraries.rutgers.edu/rul/lib_instruct/riot/. Following completion of all 5 modules, print out certificate of completion to bring to our FIGS class. **It is recommended to take a screen shot prior to printing to avoid possible technical glitches**

2. Reflection paper

   Reflection papers will be written responses, similar to journal entries, which highlight a variety of experiences you may be having as a first-year student at Rutgers. While reflection papers will be more personal in nature, they should still be typed and double-spaced with a 1-inch margin in Times New Roman 12 pt. font. All reflection papers are required to be 1-2 pages in length and should incorporate appropriate grammar and sentence structure.

   ▪ Event Reflection (10 points): Attend an event on campus that is connected to your FIGS topical area or academic success. Provide a summary of the event. What did you learn? What did you enjoy most about the event? How will this information learned help you as a student? The event must be approved by instructor prior to attending.

3. "One Step Ahead" Assignment:

   In this assignment, students must foray into computer science on their own, using the topics done in the classroom as a starting point.

   ▪ Learn a new data structure

     Students interested in learning about data structures or algorithms can delve deeper into one of the topics done during week five (data structures and algorithms), and write a reaction paper on what their interpretation of the particular topic is.

     Possible data structures include but are not limited to: stacks, queues, linked lists, multi-dimensional arrays, trees, binary search trees.

     Important questions to answer: What is the data structure and how does it work? How is it utilized? In what situations is it commonly used?

     Submission: Typed word document, Times New Roman, 12pt. double spaced. Suggested length: 2 pages.

4. Final Group Project (30 points)

All students must participate in both the planning of the final project and the group presentation on the last day of class to pass the FIGS course. Group presentations should be 6-8 minutes in length and the group size should be about four people. All presentations should have a visual aid component with at least three scholarly sources cited appropriately (i.e. PowerPoint, handout, etc.) to be posted on Sakai.

- *The final project must involve conducting a literature review of research done in a specialized domain of Computer Science, and must tackle a sort of challenge in the domain. The challenge needs to be an ongoing problem in the CS community (i.e. no solution has been discovered), and should have significant importance. The final project must talk about the importance and implications of the challenge, along with approaches used in order to overcome the challenge. The project must also focus on what kind of results, if any, have been observed, and how solving or approaching the problem has helped the domain.*

- *The choice of domain and the problem needs to be submitted to the instructor by week seven.*

A rubric and more detailed description of the final project will be distributed in class and posted on Sakai at a later date. A portion of each student's final grade will be based on peer evaluations of his/her contributions. Final group projects must be completed by the groups assigned by the peer instructor.

Weekly Course Outline

Date/Week of Class	Topics	Assignment Due
Week 1 Sept. 13	Bits and Pieces	None
Week 2 Sept. 20	Do We Have a Website?	None
Week 3 Sept. 27	Deal With Thy Databases	RIOT Tutorial
Week 4 Oct. 4	Inside the Box and Out There in Society: Systems	None
Week 5 Oct. 11	B1G D/\T/\	None
Week 6 Oct. 18	Offshore Consultants ● Excursion to CAVE, Busch Campus ● Peer Panel	None
Week 7	Corporate Culture- Intricate Planning Academic Advising and Planning	Event Reflection Paper Due Final Group Project Topic Due

Oct. 25	● Guest Speaker: Academic Dean	
Week 8 Nov. 1	RU Game? ● Faculty Guest Speaker: Dr. Mubbasir Kapadia, PhD.	Reading: "Interactive Narrative: An Intelligent Systems Approach"
Week 9 Nov. 8	IoT and Robotics	"One Step Ahead" Assignment Due
Week 10 Nov. 15	Exit(0): The Final Presentation!	Final group project due

Helpful University Resources

At some point in the semester, you may require assistance for a variety of reasons. Below is a brief list of helpful University resources.

Rutgers Student Health- http://health.rutgers.edu

- Medical http://rhsmedical.rutgers.edu
- Counseling, Alcohol & Other Drug Assistance Program & Psychiatric Services (CAPS) http://rhscaps.rutgers.edu
- Pharmacy http://rhspharmacy.rutgers.edu
- Health Outreach, Promotion & Education (H.O.P.E.) http://rhshope.rutgers.edu

Learning Centers- https://rlc.rutgers.edu/

Writing Centers- http://wp.rutgers.edu/tutoring/writingcenters

Math & Science Learning Centers- http://mslc.rutgers.edu/mslc

Office of Violence Prevention & Victim Assistance- http://vpva.rutgers.edu/

Center for Social Justice Education & LGBTQ Communities- http://socialjustice.rutgers.edu/

Office of Disability Services - https://ods.rutgers.edu

Public Safety

- RUPD http://publicsafety.rutgers.edu/rupd/
- Department of Transportation Services http://rudots.rutgers.edu/

Deans of Students- http://deanofstudents.rutgers.edu/

Syllabus subject to change