An introductory course in computer science and programming (using MATLAB) and its use in solving engineering and scientific problems. The emphasis is on the logical analysis of a problem and the formulation of a computer program leading to its solution. Topics include basic concepts of computer systems, algorithm design, programming languages and data abstraction. Designed for students not specializing in computer science.

1.1 Contact Information

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Office Hours:	Mon 4:00-5:30pm and Fri 4:00-5:30pm.	Else, by	appointment Mon/Wed/Fri
Assistant:	TBA on course web-page		
Class Hours:	**Section 104:** Fri 18:00-21:05		
Web Page:	http://www.cs.njit.edu/∼alexg/courses/cs101/index.html		

If it breaks down, use alternatively one of the following,

Web Page: http://web.njit.edu/∼alexg/courses/cs101/index.html

Web Page: http://cs.njit.edu/∼alexg/courses/cs101/index.html

Print Handout 1 from Web-page and compare the printout to this document! They must be identical.

1.2 Course Administration

Prerequisites: No course required. Knowledge of last 4 digits of your NJIT id.

Textbook: MATLAB Programming for Engineers by Stephen J. Chapman, 4th edition.
ISBN-10: 049524449X , ISBN-13: 978-0495244493.
We abbreviate in class this textbook as SC.

CourseWork: **2 exams (including the final)**; **6 quizzes**; **3 mini-projects**

Grading: 1000 points = Exam1(333) + Exam2(333) + MP (180) + QZ(154).

QZ1-6: Six quizzes to be given at unannounced dates. Minimum 25 points, maximum 50 points per quiz. The total number of points of the 6 quizzes would be at least 225. A cumulative quiz score of 154 or more earns you 154 points. 0-125 points earn you 0 points. (Quiz material may ask questions from the two weeks prior to the week of the quiz.)

MP1-3: Each one is worth 60 points.

Exams: Both exams are open-textbook only. You may bring a hard-copy of the textbook but you are not allowed to borrow one during the exam. Exam1 is on **Fri Mar 7**, 90mins, 333 points. (Be prepared: if Feb 28 or Mar 7 leads to a snow closure, the exam will be rescheduled automatically for Fri Mar 14.) Exam2 is on **Fri May 9**, 2hrs, 333 points (check with the Registrar).

Due Dates: Programs **MUST be received by email, as specified in MP and Handout 2, before NOON of the last day** they are due. Submit early, do not wait until the very end. We must receive your submission by the deadline, and we will acknowledge it promptly. Use an NJIT email address. No late work will receive credit.

Topics

Tentatitive list of topics

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T1 : High-level computer organization. Introduction to computing.  Bits and Bytes.
T2 : Data representation in memory. Integers and reals
T3 : The abstract data type: Matrix and Vector. Implementations using an array.
T4 : The fundamental concepts  of MATLAB. MATLAB basics
T5 : MATLAB vector/matrix functions and operations
T6 : MATLAB misc plotting functions
T7 : MATLAB Branching statements
T8 : MATLAB loops (iterative) statements. MATLAB functions
T9 : Program design. MATLAB profiling. Recursion.
T10: Advanced MATLAB features. Sorting and Searching.
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2.1 Course Objectives and Outcomes

Objective 1 Learn the fundamentals of computers, computing and programming.

Objective 2 Learn the fundamentals of the programming language/tool MATLAB and its programming environment.

Objective 3 Learn how to trace a MATLAB program and understand its interactions with MATLAB M-files and MATLAB functions of various types.

Objective 4 Learn how to use MATLAB to solve (simple) computational problems.

Objective 5 Learn how to use MATLAB to solve more elaborate computational problems.

Outcome 1 Be able to explain fundamental computing concepts related to processing, memory and data organization as related to engineering.

Outcome 2 Become familiar with the syntax, functionality and capabilities of MATLAB.

Outcome 3 Be able to understand and use MATLAB primitive data types, and effectively use built-in MATLAB functions.

Outcome 4 Become familiar with matrices and arrays in MATLAB and learn how to formulate and use array operations.

Outcome 5 Be able to provide a computer-based programming solution for simple engineering problems using a high-level language such as MATLAB.

Outcome 6 Be able to effectively and efficiently use MATLAB for solving more involved computational problems.

2.2 Tentative Course Calendar

Spring 2014					
Week*	**Fri**	Exams	MP	Due dates	Comments
W1	1/24				
W2	1/31				
W3	2/7		MP1 out		
W4	2/14				
W5	2/21				
W6	2/28			MP1 in	
W7	3/7	**Ex1**			Midterm is Ex1
W8	3/14		MP2 out		
W-	3/21				Spring Break; No classes
W9	3/28				
W10	4/4		MP3 out		
W11	4/11			MP2 in	
W-	4/18				Good Friday; No classes
W12	4/25			MP3 in	
W13	5/2				
W14	5/6				May 6 is a Tuesday
W15	5/9	**Ex2***			Exam Week is May 8-14

* Exam2 has already been scheduled by the Registrar

Any modifications or deviations from these dates, will be done in consultation with the attending students and will be posted on the course Web-page. It is imperative that students check the Course Web-page regularly and frequently.

Programs	Submitted code must conform to the requirements of Handout 2. Programming problems are graded based on test instances decided by the grader on a test platform of the grader's choice (e.g. AFS). Do not expect partial credit if your code fails to run on all test instances unless you accompany your code submission with a detailed bug report.
Extensions	**No extension** will be granted for the mini-projects for any reason.
Grading	Written work will be graded for conciseness and correctness. Be brief and to the point and write clearly, and mark answers clearly and unambiguously. Only material covered in class, in the relevant notes and chapters of the designated textbook can be used. DO NOT USE pencils to write down your solutions; if you decide to do so and use a pencil do not complain about grading.
Grades	Check the marks in written work and report errors promptly. **Resolve any issue related to Ex1, QZ1-6, MP1-3 no later than the Reading Day.** If you believe a grade you received for the solution of a problem is not representative of your effort, talk to the grader first and then to the instructor (if different). For mini-projects an email with your grade is sent back to you by replying to the email that was used to submit the work. **The final grade** is decided based on a 0 to 1000 point performance. A 50% or more is C or better, 90% or more is usually required for an A. The instructor reserves the right to push a student's grade up based on that student's solid (and otherwise unaccounted) work in course.
Collaboration	**Collaboration of any kind is NOT allowed in the in-class exams. Students who turn in code obtained through the Internet or otherwise, or is product of another person's/student's work, risk severe punishment, as outlined by the University. The work you submit must be the result of your own effort.**
Mobile Devices	Mobile phones/devices and/or laptops/notebooks MUST BE SWITCHED OFF (NOT JUST SILENCED) before the class exams. Switch off noisy devices before class.
Email/SPAM	Send email from an NJIT email address. NJIT spam filters or us will filter other email address origins. Include **CS 101** and **section number** in the subject line then.
Missing class	If you miss a class and there is no Exam due it's up to you to make up for lost time; if there is an unscheduled Quiz then there are other quizzes to substitute for it. MP submissions are by email.
Missing MP	There are three scheduled mini projects. Plan ahead of time and submit early; do not wait until the last MP or the last day of the deadline. No extensions are granted for any reason medical, judicial, or otherwise.
Missing Exam	If you miss an exam and there is a valid documentation for your absence, such documentation must be presented within 3 working days from the day the reason for the absence is lifted. The maximum accommodation will be the number of (justified) missing days to the exam date.
Final Exam	The final exam is scheduled by the Registrar and its date is known in advance. If you make private or travel arrangements with other instructors to have other exams rescheduled and they coincide with the exam of this class, you will not be accommodated.

The NJIT Honor Code will be upheld; any violations will be brought to the immediate attention of the Dean of Students. Read this handout carefully!