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 Wed 4:00-5:30pm.	Else, by	appointment Mon/Tue/Wed
Assistant:	TBA on course web-page		
Class Hours:	18:00-21:05 GITC 2400		
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, and your NJIT UCID and its password.
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:	**3 exams (including the final)**; **2 mini-projects**
Grading:	1000 points = Exam1(250) + Exam2(250)+ Exam3(330) + MP (170).
MP1-2	Two mini projects; each one is worth 85 points. They are due by noon of a Tuesday that is NOT a class day (Sep 30, 2014 and Dec 2, 2014 respectively).
Exams	All exams are open-textbook only and take place in class-room. You may bring a HARD-copy of the textbook but you are not allowed to borrow one during the exam. Exam1(midterm) is on **W06 of CALENDAR**, 100mins, 250 points. Exam2(quiz) is on **W12 of CALENDAR**, 100mins 250 points. Exam3(final) is on **FIN of CALENDAR**, 120mins 330 points.
Due Dates	MiniProjects(MP1-MP2) MUST be received by email, as specified in each one and also in Handout 2, **before NOON of the TUESDAY** 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. 25 points subtracted from grade every 24hr period past Tuesday noon.

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

Fall 2014				
Week*	**Tuesday-to-Monday**	Exams	MP	Comments
W01	09/02-09/08			Week starts on Tue; ends on Mon
W02	09/09-09/15		MP1 out	
W03	09/16-09/22			
W04	09/23-09/29			
W05	09/30-10/06		MP1 due by	noon TUE SEP 30
W06	10/07-10/13	**EX1**		midterm is Ex1
W07	10/14-10/20			Mon Oct 20 last drop date
W08	10/21-10/27			
W09	10/28-11/03		MP2 out	
W10	11/04-11/10			
W11	11/11-11/17			
W12	11/18-11/24	**EX2**		quiz is Ex2
W13	11/25-12/01		THANKSGIVING WEEK:	Tue is a Thu; Wed is a Fri
W14	12/02-12/08		MP2 due by	noon TUE DEC 2
W15	Tue:12/09-Wed:12/10*	Leap Week	*Ends on Wed	Reading Days:Thu 12/11, Fri 12/12
FIN	Mon:12/15-Wed:12/17	**EX3****		12/15 is Monday, 12/17 is Wednesday

**EX3 is prescheduled: same place, day and time as the class during exam week.

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 first graded by a MATLAB program. Do not expect partial credit if your code fails to use properly named MATLAB variables and indicated data types. Include a bug report for incomplete/erratic code.
Grading	Written work will be graded for conciseness and correctness. 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, after the graded work is returned.
Grades	Check the marks in written work and report errors promptly. **Resolve any issue no later than the Reading Day(s).** 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 down one level if he notices a student being absent from **MORE than 3 classes**.
Collaboration	Collaboration of any kind is NOT allowed in the in-class exams. A student must turn in code that has been fully written by him/her. Any submitted code (even few lines) obtained through the Internet or otherwise, or is product of another person's/student's work, or is common with another submission in the same section/course or other, risks severe punishment, as outlined by the University; all parties of such witting or unwitting interaction receive automatically 0 in ALL miniprojects, not just the miniproject in question. The work you submit must be the result of your own effort and you must sageguard it.
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.
Missing MP	There are two 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 to the Dean of Student Services within 3 working days from the day the reason for the absence is lifted and cced to us. 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!