ITP 168 – Introduction to MATLAB  
Units: 2  
Fall 2020 – Tuesday/Thursday – 11:00am  

Instructor: Raymond Kim  
Office: OHE 530G  
Office Hours: TBD  
Contact Info: raymonmk@usc.edu

Teaching Assistant: TBD  
Office: TBD  
Office Hours: TBD  
Contact Info: TBD

IT Help: Provided by Viterbi IT  
Hours of Service: 8am–5pm M-F  
Walk-in: DRB 205  
Contact Info: (213) 740-0517  
Email: engrhelp@usc.edu
Course Description
Fundamentals of MATLAB: a high-performance numeric computation and visualization environment. Overview of linear algebra and matrix manipulation using 2-D and 3-D plotting routines; programming in MATLAB; basic numerical analysis

Learning Objectives
Overview of MATLAB features; problem-solving methodology; arrays; use of files; functions and data structures; programming; plotting; solution of linear algebraic equations; statistics and probability; numerical methods for calculus and differential equations; and basics of symbolic methods; 2D and 3D visualization of scientific data

Prerequisite(s): None
Co-Requisite(s): None
Concurrent Enrollment: None
Recommended Preparation: MATH 118x or MATH 125

Course Notes
All lecture slides and course content including homework will be posted to the course Blackboard page. Course announcements will be posted to Piazza online forum, posted as an announcement to Blackboard, or emailed directly to your USC emails. Midterm and Final Examination are to be done by hand.

Technological Proficiency and Hardware/Software Required
Students are expected to be able to perform the following tasks before the course begins:
- Create a ZIP file that contains one or more files
- UnZIP a file that contains one or more files
- Submit files through Blackboard’s submission page
- Install MATLAB software

MATLAB is available for download at: https://software.usc.edu/

Required Readings and Supplementary Materials
Students are required to purchase a zyBooks account for the duration of the semester. Readings will be posted to zyBooks and participation will be contingent upon completion of the readings and online exercises (Participation Activities). Subscribe at http://zybooks.zyante.com using the specific code given in class.

Grading Breakdown
You will be graded on the following

<table>
<thead>
<tr>
<th>ITEM</th>
<th>% of Grade</th>
</tr>
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<tbody>
<tr>
<td>Lab Assignments</td>
<td>15</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>25</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>25</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30</td>
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<tr>
<td>zyBooks</td>
<td>5</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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Grading Scale
Course final grades will be determined using the following scale

- A: 93+
- A-: 90 - <93
- B+: 87 - <90
- B: 83 - <87
- B-: 80 - <83
- C+: 77 - <80
- C: 73 - <77
- C-: 70 - <73
- D+: 67 - <70
- D: 63 - <67
- D-: 60 - <63
- F: <60

Assignment Submission Policy - Homework
Homework assignments are to be submitted on Blackboard only. Any other form of submission to instructor, teaching assistant, or grader will not be counted. Only the last submission on Blackboard will be graded. Students will not be able to get points for any previous submissions regardless of whether the previous submissions were correct or on time.

Homework assignments are assigned at the end of the week and will be due one or two weeks after being assigned. The assignment sheet will have the due date listed. Homework will be accepted after the deadline with the following penalties:
- After due date/time up to 24 hours: -10% of total possible points for assignment
- 24 hours after due date/time up to 48 hours: -20% of total possible points for assignment
- 48 hours after due date/time up to 72 hours: -40% of total possible points for assignment
- 72 hours or more after due date/time: No credit for assignment

Extensions for homework will only be granted for those students who have a medical/family emergency or illness resulting in an inability to complete the assignment on time. Students must provide official documentation.
Assignment Submission Policy - Lab
Labs will be assigned via zyBook’s online lab platform zyLabs. Lab assignments are worth 3 points each. In order for a lab to receive full credit, they must perform the required tasks described in the assignment sheet and follow all conventions set forth in class including commenting and documentation. Students can submit as many submissions to the lab as they wish, though they must wait one hour between submissions. Due dates are specific to each lab and will be clearly marked on the lab instructions. Students must complete the assigned lab on their own and may not consult with other students on the labs. Any plagiarism or academic dishonesty will result in immediate disciplinary action as defined by USC policy.

There are no makeup labs. The only exception is a medical/family emergency, provided the student notify the instructor and provide official documentation for the emergency.

Grading Timeline
Labs will be graded using zyLab’s auto-grading platform.
Grading of homework will typically be done within one week of the deadline.

Additional Policies
Students who add the course after the start of the semester are responsible for all the work during the time they were not enrolled. A student must contact the instructor about their enrollment and schedule a time to complete the missing work. Any student who fails to contact the instructor to make up the work will be granted a 0 for the work missed. Contact must be made before the add/drop deadline.

Students are expected to complete the zyBooks readings and activities by the end of the week on which they were assigned. The end of the week will always be denoted as Saturday at midnight. If a student has not completed all of the readings and activities, they will be given a participation grade based on the percentage they have completed. The reading materials contains three different types of activities: Participation Activities, Challenge Activities, and zyLabs. Students are required to complete the Participation Activities to get credit for the zyBooks component of the course. The Challenge Activities are optional, and will NOT count for extra credit. The zyLabs activities will count towards the Lab portion of the grade.

Make-up policy for exams: To make up for a missed exam, the student must provide a satisfactory reason (as determined by the instructor) along with proper documentation. Make-up exams are generally only offered in medical or family emergency situations with the appropriate documentation. Missing an examination due to unforeseen delays in non-emergency travel plans will not constitute a satisfactory reason.

Before logging off any ITP-owned computer (laptops, desktops in OHE 540, OHE 542, KAP 107, KAP 160, KAP 162, KAP 267) students must ensure that they have saved any work to either a USB drive or a service such as Dropbox. Any work saved to the computer will be erased after restarting the computer. ITP is not responsible for any work lost.

ITP offers Open Lab use for all students enrolled in ITP classes. These open labs are held beginning the second week of classes through the last week of classes. Hours are listed at: http://itp.usc.edu/labs/.

This course will make use of Piazza, an online discussion forum. Students will be invited to join the class discussion, but are not required to. Students may post questions, answer other student’s questions, post anonymously, or post privately. Students are not allowed to post homework or lab code to Piazza publicly. Students may post homework or lab code privately on Piazza to instructors only. Any student caught posting homework or lab code on Piazza will be punished through SJACS.
### Course Schedule: A Weekly Breakdown

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics/Daily Activities</th>
<th>Labs/Homework</th>
<th>Deliverable/ Due Dates</th>
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</thead>
</table>
| Week 1 | Day 1: Algorithms/Arithmetic  
Day 2: Vectorization | No Lab | Week 1 Reading Due |
| Week 2 | Day 1: Vector Functions  
Day 2: Descriptive Statistics | Lab1  
HW1 Assigned | Week 2 Reading Due |
| Week 3 | Day 1: Conditionals  
Day 2: Logic Arrays | Lab2  
HW2 Assigned | Week 3 Reading Due  
HW1 Due |
| Week 4 | Day 1: Loops  
Day 2: Loops | Lab3  
HW3 Assigned | Week 4 Reading Due  
HW2 Due |
| Week 5 | Day 1: Cell Arrays/Strings  
Day 2: Structures | Lab4  
HW4 Assigned | Week 5 Reading Due  
HW3 Due |
| Week 6 | Day 1: File I/O  
Day 2: Functions | Lab5  
HW5 Assigned | Week 6 Reading Due  
HW4 Due |
| Week 7 | Day 1: More Functions  
Day 2: Debugging | Lab6  
HW6 Assigned | Week 7 Reading Due  
HW5 Due |
| Week 8 | Day 1: Midterm  
Day 2: 2D Plotting | HW7 Assigned | HW 6 Due |
| Week 9 | Day 1: 3D Plotting  
Day 2: Animating Plots | Lab7 | Week 9 Reading Due |
| Week 10 | Day 1: Plot Fitting/Analysis  
Day 2: Differentiation/Zero Finding | Lab8  
HW8 Assigned | Week 10 Reading Due  
HW7 Due |
| Week 11 | Day 1: Integration  
Day 2: Solving Linear Systems | Lab9  
HW9 Assigned | Week 11 Reading Due  
HW8 Due |
| Week 12 | Day 1: Triangular Factorization  
Day 2: Regular Expressions | Lab10  
HW10 Assigned | Week 12 Reading Due  
HW9 Due |
| Week 13 | Day 1: Live Scripting  
Day 2: Advanced Data Types | Lab11 | Week 13 Reading Due  
HW10 Due |
| **FINAL** | | | Date: For the date and time of the final for this class, consult the USC Schedule of Classes at www.usc.edu/soc. |

### Statement on Academic Conduct and Support Systems

**Academic Conduct:**

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of
plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards”
policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See
additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-
misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group
counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7
days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours –
24/7 on call
studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based
harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of
protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and
applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity
|Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing
readers/notetakers/interpreters, special accommodations for test taking needs, assistance with
architectural barriers, assistive technology, and support for individual needs.
USC Campus Support and Intervention - (213) 821-4710
campussupport.usc.edu
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu
Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.