**CPSC131- Numerical Methods & MATLAB**

Fall 2016, 70001

2:10 – 4:00 PM: T& Th., A&S 315

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| INSTRUCTOR: | Thamira Hindo | OFFICE: | A&S 312 |
| E-MAIL : | hindot@d2l.lcc.edu | DEPT PHONE: | 517-483-1073 |
|  |  | OFFICE HOURS | 4:00 – 5:00 pm Thursday |

QBJECTIVE: In this course, the students should be able to decompose a problem and identify an appropriate solution, identify Matlab or Excel tools to apply in a given problem, Understanding Matlab as programming language and build a graphical user interface for a certain application.

TEXTBOOK: "Learning to Program with MATLAB Building GUI Tools", by Craig S Lent, Wiley Publishing, ISBN: 978-0-470-93644-3

Flashdrive: you definitely need a flashdrive or something similar to save your work or use Google docs.

**SOFTWARE**: The software which will be required for class will be

* Microsoft Office/EXCEL, at least Office 03 or later (07 is used in the lab).
* MATLAB & Simulink Student Version available at <http://www.mathworks.com/academia/student_version/> It is essential that you purchase MATLAB (Student version with ten toolboxes: $99. Just MATLAB: $49 + extra $10/tool to add essential tools : Symbolic tool + Simulink tool)

SUPPLEMENTAL: Watch youtube videos MATLAB and Excel lessons.

D2L: Course materials, and your grades will be posted here. You will also submit documents to dropboxes in D2L.

PREREQUISITE: A grade of 2.0 or better in MATH 151/161 or concurrently, reading level 5, writing level 6, or the documented equivalent from an accredited school. Failure to meet this prerequisite will result in administrative withdrawal from CPSC131.

ATTENDANCE: If you are absent from class, you are responsible for the material covered. You should plan to spend a minimum of **6 hours** per week outside of class reviewing concepts and doing homework.

GRADES: Your course grade will be based on the following

* Homework 40%
* Tests 20%
* Attendance and participation 5% (Will be added to the final grade in the D2L grade system)
* Group Project and Presentation 20% (one project, done in assigned groups)
* Final Exam 15%

Homework will have definite due dates/times (Tuesday assignments due the next Fri by 1 pm, Thursday assignments due the next Wed by 1 pm). Due dates and times will be posted in D2L for clarity. Late submissions will be penalized as follows: same date but after due time 10%, next day 30%, two days late 70%, after two days 100%.

Final grades will be determined on a scale no worse than the following

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| Grade | 4.0 | 3.5 | 3.0 | 2.5 | 2.0 | 1.5 | 1.0 | 0.0 |
| Percentage | 94-100% | 88-93% | 82-87% | 77-81% | 71-76% | 65-70% | 60-64% | 0-59% |

**Important dates** – http://www.lcc.edu/schedule/calendars/fall\_2016.aspx

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| Wed, Aug 31/2016 | Last day to drop a class and receive a 100% refund |
| Wed, Sep 7/2016 | Last day to drop and receive a 50% refund, to change to audit status, for dropping with no course shown on record, to sit-in on a closed section |
| Mon, Dec 5/ 2016 | Last Day to Drop with “W” Grade / NO Signature Required |

**ADMINISTRATIVE DROPS**: Lack of proper prerequisite or irregular attendance (where the instructor was not notified) before the end of eighth week of the semester may result in an Administrative Drop from the course.

**Disability Support Services** Lansing Community College is committed to making accommodations and providing services for persons with disabilities. Specialists are available for those with visual, hearing, mobility, and alternative learning needs. To be eligible for services and accommodations through ODSS, Room 204 Gannon Building, students are required to provide written verification of their disability. Call (517) 483-1904 (Voice) or (517) 483-1207 (TTY) for more information.

Cell phones/pagers and other things that beep/ring/make noise: Please be sure to turn off your cell phone, pager, … before coming to class. First time you forget – a gentle reminder not to forget. Second time – there shouldn’t be one unless you want me to have possession of your item for a period of time.

Academic dishonesty, in terms of cheating or plagiarism, is not tolerated. It is the student’s responsibility to be aware of and avoid behaviors that constitute academic dishonesty: <http://lcc.edu/policy/policies_1.aspx#DISHONESTY>. A first offence will result in a 0 for the assignment, a warning letter from the instructor, and a report of the incident to the Office of Student Compliance. A second offence may result in administrative withdrawal from the class and/or a 0.0 grade. Disruptive behavior that interferes with the instructional process is not tolerated. Students are required to be familiar with and abide by the college’s Student Code of Conduct and the General Rules and Guidelines: **Official Course**

**Syllabus  
Student Code of Conduct:** [**http://www.lcc.edu/catalog/policies\_procedures/studentrulesguidelines.aspx#code**](http://www.lcc.edu/catalog/policies_procedures/studentrulesguidelines.aspx#code)

**Student General Rules and Guidelines:** [**http://www.lcc.edu/catalog/policies\_procedures/studentrulesguidelines.aspx#rules**](http://www.lcc.edu/catalog/policies_procedures/studentrulesguidelines.aspx#rules)

CPSC131 – fall 16 - 70001

2:10 – 4:00 pm Tues, Thurs A&S 315

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| **Day/Date** | **Topics** |
| Thurs 08/25 | Introduction to Problem Solving, Computational Thinking, EXCEL |
| Tues 08/30 | Matrix review, Gauss Elimination, EXCEL |
| Wed 08/31 | **Last day 100% refund** |
| Thurs 09/01 | Optimization in EXCEL and MATLAB |
| Tue 09/06 | Linear regression, Clickable features MATLAB |
| Wed 09/07 | **Last day 50% refund** |
| Thurs 09/08 | Symbolic Toolbox |
| Tues 09/13 | Symbolic Toolbox |
| Thurs 09/15 | Chapter 1, Getting Started |
| Tues 09/20 | **TEST 1** ( Chapter 1, Getting started is not included in the exam) |
| Thurs 09/22 | Chapter 1, Getting Started |
| Tues 09/27 | Chapter 2, Strings and Vectors |
| Thurs 09/29 | Chapter 2, Strings and Vectors and Chapter 3, Plotting |
| Tues 10/04 | Chapter 3, Plotting |
| Thurs 10/06 | Chapter 4, Matrices |
| Tues 10/11 | Chapter 4, Matrices |
| Thurs 10/13 | Chapter 5, Control Flow Commands, Bisection |
| Tues 10/18 | Chapter 5, Control Flow Commands, Newton-Raphson |
| Thurs 10/20 | Chapter 6, Animation |
| Tues 10/25 | **TEST 2** |
| Thurs 10/27 | Chapter 7, MATLAB functions |
| Tues 11/01 | Chapter 7, MATLAB Functions |
| Thurs 11/03 | Chapter 8, More MATLAB Data Classes and Structures and Chapter 9, Building a GUI |
| Tues 11/08 | Chapter 9, Building a GUI |
| Thurs 11/10 | Chapter 10, Transforming a MATLAB Program into a GUI tool |
| Tues 11/15 | Chapter 11, GUI Components |
| Thurs 11/17 | Simpson’s Rule, Trapezoidal Rule |
| Tues 11/22 | Chapter 13, Graphics |
| Thurs 11/24 | **Thanksgiving holiday** |
| Tues 11/29 | Chapter 14, More Mathematics, and Euler’s Method |
| Thurs 12/01 | Project |
| **Mon 12/05** | **Last Day to Drop with “W” Grade / NO Signature Required** |
| Tues 12/06 | Project |
| Thurs 12/08 | Project |
| Tues 12/13 | **FINAL** |
| Thurs 12/15 | Project Presentations |