CS 1001: Tools for Computer Scientists
Spring 2016 Syllabus

Nathan Jarus

January 25, 2016

1   Objective

This course will introduce you to programming tools that are useful for Data Structures (CS 1510), other classes, personal projects, and industry jobs.

Topics we will cover are listed in the class schedule. The material for the last couple of weeks will be determined by student interest. If there is something not on the schedule that you would like to learn, please let me know!

2   Instructor

The lab will be taught by **Nathan Jarus**.
E-mail: jarus@mst.edu
Website: https://www.mst.edu/ nmjxv3/cs1001
Office: 113 Engineering Research Lab (ERL)
Office Hours: Tuesdays and Thursdays, 11 AM
Text: None

3   Course Information

3.1   Section A

Location: Toomey Hall 251
Time: Wednesday, 4-6 PM
Assistants: Billy Rhoades and Dakota Ewigman

3.2   Section B

Location: Computer Science 206
Time: Monday, 4-6 PM
Assistants: None

4 Grading

There are a total of 150 points available in the class. 130 points will be available from homework assignments, and 20 points will be available from two projects. Overall grades will be assigned on a straight scale:

$135 - 150$	A
$120 - 134$	B
$105 - 120$	C
$90 - 104$	D
< 90	F

4.1 Attendance

No credit will be given for attendance; however, attending lab is mandatory. In addition, you must submit homework while you are physically present in lab. $\therefore$ you should probably come to class.

4.2 Homework

14 homeworks will be assigned (the first week's free, kid). Each homework will be worth 10 points. You **must** submit the homeworks while you are physically present in class. I will drop your lowest homework score from final grade calculations.

4.3 Projects

Two 10 point projects will be assigned. One will be due about halfway through the semester and one will be due at the end of the semester. The purpose of these projects is to encourage you to study some topics in class in additional depth. I will give you a list of topics you can choose to do a project on, or you may choose a topic of your own with my approval. To encourage you to experiment on your own, these projects will be fairly open-ended, but I will do my best to be clear about what I expect from you for them.

5 Schedule

1. Introduction, Text Editors

2. Shell Commands and Configuration

3. Version Control

4. Shell Scripting

5. Regular Expressions

6. Using an IDE for C++

7. Build Systems

8. Debugging

9. Profiling

10. Code Linting

11. Unit Testing

12. C++ Tricks

13. Creating GTK Applications

14. TBD

15. TBD

Possible topics:

- Boost Library

- Doxygen

- LaTeX

- Functional C++ features

- Scripting with Ruby XOR Python

- strace/ltrace

- objdump and friends

- Software licensing/open source software

6   Policies

6.1   Electronics

Lab will be held in a computer lab classroom, so you do not need to bring your own computer. However, you may choose to bring along your own machine if you want. I recommend that you consult the posted slides before each class to ensure that the tools we will be using are already installed and configured. Keep in mind that the lab instructor and assistants are not there to help you with problems specific to your machine.

Please do not use your phone or computer for things unrelated to class while class is in session out of respect for your fellow classmates and the instructor. Distraction is contagious.

6.2 Prerequisites

Students must be enrolled in or have already taken CS 1510 (Data Structures).

6.3 Communication

I prefer if you contact me via email. I will send announcements concerning the course via email; you should check your email at least once a day during the school week for these announcements.

Course materials, homework and project assignments, and resources will be posted to the course website.

6.4 Academic Dishonesty

I take academic dishonesty very seriously, especially in a laboratory class setting where students are expected to gain hands-on experience with the course material. You are encouraged to ask other students questions, but all classwork must be your own. Page 21 of the Student Academic Regulations Handbook describes the standard of conduct for students and gives examples of academic dishonesty. For a first offense, you will receive a score of zero on the assignment and your final grade will be reduced by one letter grade. A second offense will result in you receiving a grade of F in the class. All instances of academic dishonesty will be reported to your advisor and university administration per the university's policies.

6.5 Questions and Concerns

Do not hesitate to ask me questions or discuss concerns you have with the course, the assistants, or me. If I do not properly address my concerns or you do not feel comfortable discussing your concern with me, you should speak with my supervisor, Dr. A. Ricardo Morales. If neither of us resolve your issue, you should contact the CS Department Chair, Dr. Sajal Das.

6.6 Classroom Egress Maps

Familiarize yourself with classroom and building exits. Classroom egress maps are posted on-line at: http://designconstruction.mst.edu/floorplan/.

6.7 Disability Support Services

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Support Services staff send a letter to me verifying your disability and specifying the accommodation you will need. Disability Support Services is located in 204 Norwood Hall. Their phone number is 341-4211 and their email is dss@mst.edu.

6.8 Title IX

Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises.Missouri S&Ts Title IX Coordinator is Vice Chancellor Shenethia Manuel. Contact her directly (manuels@mst.edu; (573) 341-4920; 113 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit http://titleix.mst.edu.