NOTE to prospective students: This syllabus is intended to provide students who are considering taking this course an idea of what they will be learning. A more detailed syllabus will be available on the course Canvas site for enrolled students and may be more current than this sample syllabus.

Course Name: OPERATING SYSTEMS I
Course Number: CS 344
Credits: 4
Instructor name: Benjamin Brewster
Email: brewsteb@oregonstate.edu (see Communication section)

Course Description
Introduction to operating systems using UNIX as the case study. System calls and utilities, fundamentals of processes and interprocess communication.

In this Introduction to Operating Systems course we will be learning about processes and programs, inter-process communication, system calls and utilities, and networking. We will use Unix as our model OS.

This is a project-oriented course, which means that you'll be writing a lot of software from scratch. In addition, there is an emphasis on researching API calls and languages, so there will be times where specific elements are not given to you, to give you practice in research and problem solving.

Information about Office Hours, TAs, and TA grading responsibilities are listed on our main Home page (the default page that opens up when you visit CS344 in Canvas).

PREREQs: CS 261 [C] and (CS 271 [C] or ECE 271 [C] ) and experience programming in the C language.

Communication
Here are the preferred communication methods we'll be using:

- Canvas Discussions (threaded, not-live discussions)
- Office Hour Chats

I prefer that you ask questions about the material in the Canvas Discussions, as opposed to direct messages to me, in order to help make these questions and answers available to everyone. Describe what you've done, post the relevant problem code or concept, and then ask
your question. Please do not email me all your code and ask me to tell you what the problem is. Instead, ask your question on Canvas, so I and everyone else can respond to it there. Other than the days specified below, I'm on the Discussion boards nearly every single day.

In order to have email reach me, you must put [CS344-400] in the subject line, or else I may miss it. I expect that I'll respond to your email within one business day. I do not generally communicate over the weekend or on holidays.

Normally, when a question is posted on Canvas, I will let students answer first, before I chime in. I have found that this helps stimulate participation, without having me come down all deus-ex-machina like.

The key to success in this course is participation: please visit the Discussions on a near daily basis to keep current with what is being discussed, ask your questions, and help others out. You're welcome to ask questions in Office Hours, as well!

**Course Credits**

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

**Technical Assistance**

If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.

**Learning Resources**

Our optional books are:


William E. Shotts, Jr., *The Linux Command Line 13.07*, LinuxCommand.org (free download!)

**Note to prospective students**: Please check with the OSU Bookstore for up-to-date information for the term you enroll ([OSU Bookstore Website](http://www.oregonstate.edu/bookstore) or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

**Canvas**

This course will be delivered via Canvas where you will interact with your classmates and with your instructor. Within the course Canvas site you will access the learning materials, such as the syllabus, class discussions, assignments, projects, and quizzes. To preview how an online course works, visit the [Ecampus Course Demo](http://www.ecampus.oregonstate.edu). For technical assistance, please visit [Ecampus Technical Help](http://www.ecampus.oregonstate.edu).
Measurable Student Learning Outcomes

Here is a good list of Objectives:

- Explain why multiprogramming is important for modern operating systems.
- Explain the general structure of a multiprogrammed operating system.
- Explain the purpose and operation of system calls.
- Write a program utilizing system calls.
- Write a program using a scripting language.
- Explain how to use regular expressions to parse input data.
- Write a program that spawns processes and provides mutual exclusion for variables or other resources shared by the processes.
- Write a program that uses sockets to implement a client/server system.
- Explain how a common file system works, including structure, I/O operations, and security.
- Describe the memory organization of a typical process in a common operating system.

You will be using Unix and C extensively in this course. C is not taught here, however: I expect that you have experience programming, compiling, and using C and its libraries, and are familiar with basic Unix commands.

To succeed in this course, you'll need to watch and read through the lecture materials, participate in discussions, study on your own, and ask questions when needed/desired. I do expect that you'll consult the book and the web before asking "how-to" questions. The worldwide web is a treasure trove of UNIX programming knowledge!

Evaluation of Student Performance

Grading

- Syllabus Quiz: 10 points
- Program 1: 160 points
- Program 2: 160 points
- Program 3: 160 points
- Program 4: 160 points
- Program 5: 32 points
- Final Exam: 200 points

Total: 882 points

If you have grading questions, you must contact the TAs, as they do ALL of the grading (except for the final, which is graded automatically by Canvas). I will send out contact information for them, and a note about who is grading what, once the term has started.

Final

The final is completely un-proctored (we do not use Proctor U for any assignment or test in this class). I trust you; validate my trust in you! On the final, you'll be able to use whatever notes,
lectures, websites, and books you like, including OSU's servers that you'll be developing your assignments on. You may not take the final with any other student, past or present. There is no midterm exam.

**Grading Policies**
All assignments must be submitted on Canvas, according to the posted due date and time, or they will be subject to penalties. All assignments that are submitted late by less than 24 hours will have 10% deducted from their grade (e.g. an assignment submitted at 12:01pm, if it was due at 12:00pm, will be worth 90% of its graded value). Assignments submitted late equal to or more than 24 hours, but less than 48 hours, will have 25% deducted from their grade. Assignments may not be submitted late past 48 hours, and will be worth 0 points.

The Final Exam and Syllabus Quiz, which take the form of Canvas Quizzes, cannot be taken late.

If you have a major event in your life that will prevent you from timely completing your work, you must notify me as soon as you encounter it. Notifying me after an assignment is late that issues have arisen will likely not create relief.

There won't be a curve applied to the grading of the course. The grading scale is as follows:
- $92 \leq A \leq 100$
- $90 \leq A- < 92$
- $88 \leq B+ < 90$
- $82 \leq B < 88$
- $80 \leq B- < 82$
- $78 \leq C+ < 80$
- $72 \leq C < 78$
- $70 \leq C- < 72$
- $68 \leq D+ < 70$
- $62 \leq D < 68$
- $60 \leq D- < 62$
- $0 \leq F < 60$

Note that when you take the final, you won't be able to see how you did on the individual questions and answers. It'll simply give you a point grade, and that's it.

**Relax**
Really, this is a fun course. I do my best to be entertaining, and not overly boring. I don't like drama. The information we cover is *fundamental* to your education in working with computer systems, and is actually pretty interesting. :)

If you're not having fun, you're doing it wrong!
Course Policies

Letters of Recommendation
As much as appreciate having you in class, it is very unlikely I will be able to provide you with a letter of recommendation. I will only be able to write those letters for students that I have really gotten to know. If you’re interested, and think I know you well enough, feel free to ask!

Discussion Participation
Students are expected to participate in all graded discussions. While there is great flexibility in online courses, this is not a self-paced course.

Makeup Exams
Makeup exams will be given only for missed exams excused in advance by the instructor. Excused absences will not be given for airline reservations, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will generally not be given after the absence has occurred, except under very unusual circumstances.

Incompletes
Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible (in other words, usually everything but the final paper). If you are having any difficulty that might prevent you completing the coursework, please don’t wait until the end of the term; let me know right away.

Guidelines for a Productive and Effective Online Classroom
Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university’s regulations regarding civility.

Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this online course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are
expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

**Statement Regarding Students with Disabilities**
Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

**Accessibility of Course Materials**
All materials used in this course are accessible. If you require accommodations, please contact Disability Access Services (DAS).

Additionally, Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities.

**Expectations for Student Conduct**
Student conduct is governed by the university’s policies, as explained in the Student Conduct Code.

**Academic Integrity**
Please see the policies for OSU and EECS.

I have no problems with you working together to solve problems, work through coding bugs, etc. I do require that final code and test answers be your own work. it is to your advantage to quote resources that you use for help (web links, book page numbers, etc.). Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit Student Conduct and Community Standards, or contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.

b) It includes:

   i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or
collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

iv) TAMPERING - altering or interfering with evaluation instruments or documents.

v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

Conduct in this Online Classroom
Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

Tutoring
NetTutor is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real time environment. They also have an online writing lab where tutors critique and return essays within 24 to 48 hours. Access NetTutor from within your Canvas class by clicking on the Tools button in your course menu.

OSU Student Evaluation of Teaching
Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the 19 multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. You will log in to “Student Online Services” to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.