



## ECE437/CS481 Operating Systems, Fall 2016

# Course Syllabus

### ■ Course Description:

Provide an introduction to the fundamental principles of modern operating systems, including processes, inter-process communication, semaphores, monitors, message passing, remote procedure call, input/output device management, deadlocks, device drivers, memory management, file system design. Prerequisites: ECE331, ECE344, or CS341

### ■ Instructor and Teaching Assistants

Course Information	ECE437/CS481	learn.unm.edu
Lecture Time & Place	Mon/Wed 11:00-12:15am	DSH 120
Course Instructor	Dr. Edward Nava	ejnava@unm.edu
Office Hour and Location	Mon/Wed 1:30-2:30pm	Room 225C, ECE
Teaching Assistant	Mithun Mohan	mithunmohan@unm.edu
Office Hour and Location	Tues/Thurs 10:30am – 12:30pm	Room 230D, ECE

### ■ Textbook

*Required:* [Silberschatz](#), [Peter Baer Galvin](#), and [Greg Gagne](#), "Operating System Concepts," 9<sup>th</sup> edition, ISBN 978-1-118-06333-0, [Wiley](#), Inc, 2013.

#### *Helpful Reference Books:*

Robert Love, "Linux System Programming: Talking Directly to the Kernel and C Library," 2<sup>nd</sup> edition, ISBN 978-1449339531, O'Reilly Media, June 8, 2013.

King, K.N. "C Programming, A Modern Approach", 2<sup>nd</sup> Edition. W.W. Norton & Company, New York, 2008.

Matloff, N. and P.J. Salzman. "The Art of Debugging with GDB, DDD, and ECLIPSE". No Starch Press, San Francisco, 2008.

Matthew, N. and R. Stones. "Beginning LINUX Programming", 4<sup>th</sup> Edition. Wiley Publishing, Indianapolis, 2008.

Stevens, W.R. and S.A. Rago. "Advanced Programming in the UNIX Environment", 2<sup>nd</sup> Edition. Addison Wesley, Boston, 2005.

### ■ Grading Scheme

- ✓ Homework Assignment and Programming Assignments: 40%

Homework assignments and programming projects are intended to be individual assignments unless a team assignment is given. Evidence of copying will be penalized with zero credit for all guilty parties. Late programming projects will be accepted within 3 calendar days but with a 30% PENALTY. You will be granted three credit-days for Programming Assignments. You can use them in units of one credit-day (no 1/2 day), as



long as you do not accumulate more than three total. When you decide to use late credit, you need to indicate in the comments of your submission how many days you'd like to use. If you work as a team of two, both partners' credit-days will be charged. No late homework will be accepted.

- ✓ Exam I, II, III: 20% for each, 60% in total.
- ✓ Final Exam (optional, comprehensive): Replace min(Exam I, II, III)  
Exams will cover material presented in class, programming projects, and homework assignments. Arrangements must be made at least 7 days in advance if you are unable to be present for an exam.

## ■ Tentative Schedule

The Schedule is subject to change. Minor changes will be announced in class, major ones provided in writing.

Weeks	Monday	Wednesday	Expected Outcomes
08/22-08/24	Introduction, § 1,2,18,19	Introduction, § 1,2,18,19	O <sub>1</sub>
08/29-08/31	Introduction, § 1,2,18,19	Introduction, § 1,2,18,19	O <sub>1</sub>
09/05-09/07	Labor Day	Processes & Threads, § 3,4	O <sub>2</sub>
09/12-09/14	Processes & Threads, § 3,4	Processes & Threads, § 3,4	O <sub>2</sub>
09/19-09/21	CPU Scheduling, § 6	CPU Scheduling, § 6	O <sub>2</sub> and O <sub>3</sub>
09/26-09/28	Exam I (Tentative)	Process Synchronization, § 5	O <sub>3</sub>
10/03-10/05	Process Synchronization, § 5	Process Synchronization, § 5	O <sub>3</sub>
10/10-10/12	Process Synchronization, § 5	Deadlock, § 7	O <sub>3</sub> and O <sub>4</sub>
10/17-10/19	Deadlock, § 7	Files, § 10,11,12	O <sub>4</sub> and O <sub>5</sub>
10/24-10/26	Files, § 10,11,12	Files, § 10,11,12	O <sub>5</sub>
10/31-11/02	Exam II (Tentative)	I/O Systems, § 13	O <sub>5</sub>
11/07-11/09	Memory, § 8,9	Memory, § 8,9	O <sub>6</sub>
11/14-11/16	Memory, § 8,9	Memory, § 8,9	O <sub>6</sub>
11/21-11/23	Protection & Security, § 14,15	Protection & Security, § 14,15	O <sub>7</sub>
11/28-11/30	Virtual Machines, § 16	Exam III (Tentative)	
12/05-12/07	Virtual Machines, § 16	Distributed Systems, § 17	
12/08-12/10	Final Exam	***Winter break***	

## ■ Communication Protocols

You should utilize the discussion board at [learn.unm.edu](http://learn.unm.edu) to ask/answer/discuss questions, as well as posting articles, discussions, references, any topics relevant to the course. Information sharing (non-copyrighted material) is strongly encouraged. If you need to email the instructor or TAs, you must begin your subject line starting with either "ECE437" or "CS481". We will try our best to reply your email within 24 hours (except weekends or Holidays). If you have any concerns about your grade, you have to request a review within 7 days of when the grade is made available to you.



### ■ Attendance Policy

Regular and punctual attendance is required. UNM Pathfinder policies apply, which in part means instructor drops based on non-attendance are possible. This policy applies regardless of the grading option you have chosen.

### ■ Accommodation Statement

Accessibility Services (Mesa Vista Hall 2021, 277-3506) provides academic support to students who have disabilities. If you think you need alternative accessible formats for undertaking and completing coursework, you should contact this service right away to assure your needs are met in a timely manner. If you need local assistance in contacting Accessibility Services, see the Bachelor and Graduate Programs office.

### ■ Academic Integrity

The University of New Mexico believes that academic honesty is a foundation principle for personal and academic development. All University policies regarding academic honesty apply to this course. Academic dishonesty includes, but is not limited to, cheating or copying, plagiarism (claiming credit for the words or works of another from any type of source such as print, Internet or electronic database, or failing to cite the source), fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. The University's full statement on academic honesty and the consequences for failure to comply is available in the college catalog and in the *Pathfinder*.

### ■ Cell Phones and Technology

As a matter of courtesy, please turn off cell phones, pagers, and other communication and entertainment devices prior to the beginning of class. Notify me in advance if you are monitoring an emergency, for which cell phone ringers should be switched to vibrate.

### ■ Library and Tutorial Services

UNM-Main campus provides many library services and some tutorial services for students. For library services, go to <http://www.unm.edu/libraries/> to link to a specific library or to contact a librarian. For tutorial services, go to <http://caps.unm.edu/online> to explore UNM's online services.

### ■ UNM Copyright Policy and Law - University Counsel's Office, Subject to Change Without Notice

The unauthorized distribution of copyrighted material, including through peer-to-peer file sharing, may subject a student to criminal and civil penalties. The laws that govern copyright are not specific to any one technology. Students can violate the rights of a copyright holder using many different types of technology. Both uploading and downloading of files can pose a violation of the copyright law. Students should be cautious when obtaining any copyrighted material. As a rule of thumb, before a student receives anything for free, they should research whether that source provides material licensed by the copyright owner. A group called EDUCAUSE has a list of legal file sharing alternatives at <http://www.educause.edu/legalcontent>.

Individuals who violate copyright law by illegally uploading and downloading copyrighted files may be subject to civil penalties of between \$750 and \$150,000 per song. These penalties are



established by federal law. In the past, pre-litigation settlements offered by copyright owners have been in the \$3,000 to \$4,000 and up range while juries in some jurisdictions have issued verdicts of hundreds of thousands and up. In addition, a court may, in its discretion, grant the copyright owner reasonable attorney fees. Although criminal prosecution of students for file sharing is extremely rare, federal law lays out criminal penalties for intentional copyright infringement which can include fines and jail time. In addition to potentially violating the law, unauthorized distribution or receipt of copyrighted material is a violation of University Business Policies and Procedures Manual 2500. That policy states that: "Users shall respect all copyrights including software copyrights...Use of University computing services in violation of applicable laws or University policy may result in sanctions, including withdrawal of use privilege; disciplinary action, up to and including, expulsion from the University or discharge from a position; and legal prosecution under applicable federal and/or state law."