

WAYLAND BAPTIST UNIVERSITY
WBUOnline
SCHOOL OF MATHEMATICS AND SCIENCES

Wayland Mission Statement:

Wayland Baptist University exists to educate students in an academically challenging, learning-focused, and distinctively Christian environment for professional success and service to God and humankind.

Course Title and Number:

CSCI 3361-VC01; PROGRAMMING LANGUAGE SURVEY AND CONCEPTS

Term:

SUMMER 2020

Name of Instructor:

Dr. Scott R. Franklin, Professor of Mathematics and Computer Science

Office Phone Number and WBU Email Address:

806-291-1130; franklins@wbu.edu; Cell/Text: 806-252-3855

Office Hours, Building, and Location:

By Appointment, Online Via Blackboard Collaborate

Class Meeting Time and Location:

Online (Asynchronous)

Catalog Description:

Survey of distinctively-varied programming languages, including investigation and comparison of different programming language paradigms and programming language concepts

Prerequisites: CSCI 2313.

Required Textbook and Resources:

The C Programming Language, Kernighan and Ritchie, Prentice Hall, 1988
(made available through Vital Source in Blackboard)

Recommended:

The Little Schemer, MIT Press, 1995, Friedman and Felleisen. ISBN: 860-1300171425 (this text is recommended for students who really want to learn how to think functionally)

All other required texts will be provided through Blackboard at no additional cost.

You must have access to a computer on which you can install the development software, including both the Python, the Racket flavor of Scheme, and a standards-compliant C environment. Specific recommendations will be provided in the course in Blackboard.

Course Outcome Competencies:

Upon completion of this course the student should be able to:

- Explain basics of parsing
- Write simple programs in C
- Write simple programs in Racket Scheme
- Write simple programs in Python
- Discuss major factors that might make one language more suitable than another for a given project

Attendance Requirements:

Students are expected to participate in all required instructional activities in their courses. In this course, your weekly assignments will be the measure of attendance. Any week in which a student does not complete any work, the student will be considered "absent." Any student absent 25% or more (i.e., non-participatory during 3 or more weeks of the term) will receive an F for the course.

Statement on Plagiarism and Academic Dishonesty:

Wayland Baptist University observes a zero tolerance policy regarding academic dishonesty. Per university policy as described in the academic catalog, all cases of academic dishonesty will be reported and second offenses will result in suspension from the university.

Disability Statement:

In compliance with the Americans with Disabilities Act of 1990 (ADA), it is the policy of Wayland Baptist University that no otherwise qualified person with a disability be excluded from participation in, be denied the benefits of, or be subject to discrimination under any educational program or activity in the university. The Coordinator of Counseling Services serves as the coordinator of students with a disability and should be contacted concerning accommodation requests at (806) 291-3765. Documentation of a disability must accompany any request for accommodations.

Course Requirements and Grading Criteria:

- 20% Reading Quizzes: Each week of class will begin with a quiz to measure student comprehension of material and encourage you to absorb your reading and weekly material.
- 50% Labs: Submit via Blackboard each week by Sunday night, per schedule. 10% reduction per day for late. For the labs, you may refer to your book and discuss difficulties with your classmates but may not use code from anyone nor from the Internet.
- 30% Exams (15% each): Multiple-choice and open-ended questions for mid-term and comprehensive final. You may be expected to write code on the exams. Each exam must be proctored by either approved, Wayland personnel at one of our campuses, by an approved third-party proctor, or through our online proctoring partner Proctorio.

A: 90 – 100 B: 80 – 89 C: 70 – 79 D: 60 – 69 F: Below 60

Students shall have protection through orderly procedures against prejudices or capricious academic evaluation. A student who believes that he or she has not been held to realistic academic standards, just evaluation procedures, or appropriate grading, may appeal the final grade given in the course by using the student grade appeal process described in the Academic Catalog. Appeals may not be made for advanced placement examinations or course bypass examinations. Appeals are limited to the final course grade, which may be upheld, raised, or lowered at any stage of the appeal process. Any recommendation to lower a course grade must be submitted through the Executive Vice President/Provost to the Faculty Assembly Grade Appeals Committee for review and approval. The Faculty Assembly Grade Appeals Committee may instruct that the course grade be upheld, raised, or lowered to a more proper evaluation.

Tentative Schedule

- Weeks 1-3: C Programming
- Weeks 4-6: Thinking Python
- Week 7: Proctored Midterm
- Week 8-10: Functional Programming (Ratchet/Scheme)
- Week 11: Proctored Final

Academic Honesty:

Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to this course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanctions to any student involved.

Important Dates:

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|-------------------------------------|--------|
| First Day of Class | May 25 |
| Last day to drop without record | Jun 9 |
| Last day to withdraw with "W" | Jul 24 |
| Last day to withdraw with a "WP/WF" | Jul 31 |
| Last Day of Class | Aug 8 |

This syllabus is only a plan. The teacher may modify the plan during the course. The requirements and grading criteria may be changed during the course if necessary.

Tentative Schedule

| Week No. | Class No. | Material | Labs | Dates |
|-----------|-----------|---|---------------------|--------------------------|
| 1 | 1 | Syllabus and Course Design | | Mon, Jan 14 |
| | 2 | Ch 1: Introduction | | Wed, Jan 16 |
| | 3 | Ch 2. Analysis of Algorithms | | Fri, Jan 18 |
| 2 | 4 | Ch 2. Analysis of Algorithms | Lab 1: main | Wed, Jan 23 |
| | 5 | Ch 2. Analysis of Algorithms | | Fri, Jan 25 |
| 3 | 6 | Ch 2. Analysis of Algorithms | | Mon, Jan 28 |
| | 7 | Ch 3. Collections (and stacks as example) | | Wed, Jan 30 |
| | 8 | Ch 3. Collections (and stacks as example) | Lab 2: ArrayStack | Fri, Feb 1 |
| 4 | 9 | Ch 3. Collections (and stacks as example) | | Mon, Feb 4 |
| | 10 | Ch 4. Linked Structures | | Wed, Feb 6 |
| | 11 | Ch 4. Linked Structures | | Fri, Feb 8 |
| 5 | 12 | Ch 4. Linked Structures | | Mon, Feb 11 |
| | 13 | Review and catchup | | Wed, Feb 13 |
| | 14 | Exam I (chapters 1 - 4) | | Fri, Feb 15 |
| 6 | 15 | Ch 5. Queues | Lab 3: Linked Queue | Mon, Feb 18 |
| | 16 | Ch 5. Queues | | Wed, Feb 20 |
| | 17 | Ch 5. Queues | | Fri, Feb 22 |
| 7 | 18 | Ch 6. Lists | Lab 4: Linked List | Mon, Feb 25 |
| | 19 | Ch 6. Lists | | Wed, Feb 27 |
| | 20 | Ch 6. Lists | | Fri, Mar 1 |
| 8 | 21 | Ch 7. Iterators | | Mon, Mar 4 |
| | 22 | Ch 7. Iterators | | Wed, Mar 6 |
| | 23 | Ch 7. Iterators | | Fri, Mar 8 |
| 9 | 24 | Ch 8. Recursion | | Mon, Mar 18 |
| | 25 | Ch 8. Recursion | Lab 5: Recursion I | Wed, Mar 20 |
| | 26 | Ch 8. Recursion | | Fri, Mar 22 |
| 10 | 27 | Ch 8. Recursion | | Mon, Mar 25 |
| | 28 | Review and catchup | | Wed, Mar 27 |
| | 29 | Exam II | | Fri, Mar 29 |
| 11 | 30 | Ch 9. Sorting and Searching | | Mon, Apr 1 |
| | 31 | Ch 9. Sorting and Searching | Lab 6: Bubble Sort | Wed, Apr 3 |
| | 32 | Ch 9. Sorting and Searching | | Fri, Apr 5 |
| 12 | 33 | Ch 10. Trees | Lab 7: Recursion II | Mon, Apr 8 |
| | 34 | Ch 10. Trees | | Wed, Apr 10 |
| | 35 | Ch 10. Trees | | Fri, Apr 12 |
| 13 | 36 | Ch 11. Binary Search Trees | Lab 8: Tree Node | Mon, Apr 15 |
| | 37 | Ch 11. Binary Search Trees | | Wed, Apr 17 |
| 14 | 38 | Ch 15. Graphs (except 15.6) | | Wed, Apr 24 |
| | 39 | Ch 15. Graphs (except 15.6) | | Fri, Apr 26 |
| 15 | 40 | Ch 15. Graphs (except 15.6) | | Mon, Apr 29 |
| | 41 | Ch 15. Graphs (except 15.6) | | Wed, May 1 |
| | 42 | Exam review (and catchup) | | Fri, May 3 |
| 16 | | Final Exam | | Wed, May 8 10:15 - 12:15 |