



浙江大學

COMP523

Data Structures & Algorithms

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Instructor Contact Details

Lecturer-in-charge: TBA

Email: wlwyxy_29@zju.edu.cn

Office location: Huajiachi Campus, Zhejiang University

Consultation Time: to be announced, and by appointment

Teaching Times, Modes and Locations

The Time: TBA

Modes: Online/Face-to-face

Location: Anywhere via online/Huajiachi Campus, Zhejiang University via face-to-face

Academic Level

Undergraduate

Units of Credit

The course is worth 6 units of credit

Credit Hours

The number of credit hours of this course equals to the credits of a standard semester-long Australian university course.

Contact Hours

The course contains a total of 53 contact hours, which consists of orientation, lectures, seminars, quiz, discussion, research, case study, small tests, assignments, on-site field trip(s), in-class and after-class activities, revision and final exam. Students will receive an official transcript which is issued by Zhejiang University when completing this course.

Course Description:

This course is giving a brief understanding of data structures and algorithms and how these can be employed effectively in the design of software systems. It is an important course in covering a range of core data structures and algorithms that will be used in context in later courses. You explore these ideas in lectures, tutorials, lab classes, and assignments. Assessment involves labs, tutorials, practical lab exams, a practical final exam, and a theory exam. At the end of the course, we want you to be a solid programmer, with knowledge of a range of useful data structures and programming techniques, capable of building significant software systems in a team environment, and ready to continue with further specialised

Prerequisite:

N/A

Learning Resources

Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, Introduction to Algorithms, Third Edition, MIT Press.

Learning Objectives

By the end of this course you should be able to:

- Skills in performing analysis of given recursive and iterative algorithms.
- Understanding and performing simple proofs of algorithmic complexity and correctness.
- An ability to understand and derive recurrences describing algorithms and properties of data structures.
- An understanding of the implementation and efficiency of a range of data structures including, trees, binary heaps, hash-tables and graphs.
- An understanding of a variety of well-known algorithms on some of the data structures presented.

- The ability to implement and use these algorithms in code.
- A foundational understanding of intractability. An understanding of proof techniques for NP-Completeness.
- An ability to solve new analytic and algorithmic problems.

Course Delivery:

- Online Lecture mode includes lectures, seminars, quiz, discussion, research, case study, small tests, assignments, online field trip(s), in-class activities, revision and final exam.
- Face-to-face Lecture mode includes lectures, seminars, quiz, discussion, research, case study, small tests, assignments, on-site field trip(s), in-class and after-class activities, revision and final exam.

The following course will be taught in English. There will also be guest speakers and optional field trips available for students who would like to enhance their learning experience. All courses and others sessions will be run during weekdays.

Topics and Course Schedule:

Topic	Activities
Orientation	
Introduction to the course	Lecture; Tutorial
Analysis of ADT (multiple) implementations Trees, Binary Search Trees (BST)	Lecture; Tutorial
Balanced Trees, Search Tree Algorithms	Lecture; Tutorial
Graph ADT, Graph Algorithms (1)	Lecture; Tutorial

Graph Algorithms (2)	Lecture; Tutorial
Seminar	
Hashing, Heaps	Lecture; Tutorial
Generic ADTs in C	Lecture; Tutorial
Seminar	
Sorting (1)	Lecture; Tutorial
Sorting (2)	Lecture; Tutorial
LABS	Lecture; Tutorial
Text processing algorithms	Lecture; Tutorial
Course Review	Lecture; Tutorial
Review Exercises	Lecture; Tutorial
Revision	
Final exam	

Assessments:

Assignment	30%
Quiz	30%
Group Workshops	10%
Final exam	30%

Grade Descriptors:

HD	High Distinction	85-100
D	Distinction	75-84

Cr	Credit	65-74
P	Pass	50-64
F	Fail	0-49

High Distinction 85-100

Treatment of material evidences an advanced synthesis of ideas

Demonstration of initiative, complex understanding and analysis

Work is well-written and stylistically sophisticated, including appropriate referencing, clarity, and some creativity where appropriate

All criteria addressed to a high level

Distinction 75-84

Treatment of material evidences an advanced understanding of ideas

Demonstration of initiative, complex understanding and analysis

Work is well-written and stylistically strong

All criteria addressed strongly

Credit 65-74

Treatment of material displays a good understanding of ideas

Work is well-written and stylistically sound, with a minimum of syntactical errors

All criteria addressed clearly

Pass 50-64

Treatment of material indicates a satisfactory understanding of ideas

Work is adequately written, with some syntactical errors

Most criteria addressed adequately

Fail 0-49

Treatment of ideas indicates an inadequate understanding of ideas

Written style inappropriate to task; major problems with expression

Most criteria not clearly or adequately addressed

Academic Integrity

Students are expected to uphold the university's academic honesty principles which are an integral part of the university's core values and principles. If a student fails to observe the acceptable standards of academic honesty, they could attract penalties and even disqualification from the course in more serious circumstances. Students are responsible for knowing and observing accepted principles of research, writing and any other task which they are required to complete.

Academic dishonesty or cheating includes acts of plagiarism, misrepresentation, fabrication, failure to reference materials used properly and forgery. These may include, but are not limited to: claiming the work of others as your own, deliberately applying false and inaccurate information, copying the work of others in part or whole, allowing others in the course to copy your work in part or whole, failing to appropriately acknowledge the work of other scholars/authors through acceptable referencing standards, purchasing papers or writing papers for other students and submitting the same paper twice for the same subject.

This Academic Integrity policy applies to all students of the Zhejiang University in all programmes of study, including non-graduating students. It is to reinforce the University's commitment to maintain integrity and honesty in all academic activities of the University community.

Policy

- The foundation of good academic work is honesty. Maintaining academic integrity upholds the standards of the University.
- The responsibility for maintaining integrity in all the activities of the academic community lies with the students as well as the faculty and the University. Everyone in this community must work together to ensure that the values of truth, trust and justice are upheld.
- Academic dishonesty affects the University's reputation and devalues the degrees offered.
- The University will impose serious penalties on students who are found to have violated this Policy. The following penalties may be imposed:
 - Expulsion;
 - Suspension;
 - Zero mark/fail grade;

- Marking down;
- Re-doing/re-submitting of assignments or reports; and
- Verbal or written warning.

