

# COURSES AND PROJECTS TAUGHT AT SEATTLE UNIVERSITY

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## COURSES

| <i>Quarter</i> | <i>Course</i>                        | <i>Students</i> | <i>Course type</i>     |
|----------------|--------------------------------------|-----------------|------------------------|
| W96            | SE560 Human-Computer Interaction     | 24              | new elective (Adjunct) |
| Su96           | SE561 Programming GUIs               | 19              | new elective (Adjunct) |
| A96            | SE592C Client-Server Architectures   | 30              | new elective           |
| W97            | SE560 Human-Computer Interaction     | 19              | repeat elective        |
|                | SE500 Data Structures and Algorithms | 7               | new core required      |
| Sp97           | SE561 Programming the Interface      | 17              | new elective           |
|                | SE543 Applied Formal Methods         | 6               | new elective           |
| A97            | SE502 Mathematical Foundation        | 17              | new core required      |
|                | SE553 Artificial Intelligence        | 15              | new elective           |
| W98            | SE543 Applied Formal Methods         | 9               | repeat elective        |
| S98            | SE500 Data Structures and Algorithms | 20              | repeat core required   |
| A98            | SE560 Human Computer Interaction     | 11              | repeat elective        |
|                | SE502 Math Foundations               | 23              | repeat core required   |
| W99            | SE561 Programming the Interface      | 5               | repeat elective        |
| S99            | SE564 Computer Graphics              | 8               | new elective           |
|                | SE500 Data Structures and Algorithms | 12              | repeat core required   |
| A99            | SE502 Mathematical Foundations       | 17              | repeat core required   |
|                | SE553 Artificial Intelligence        | 8               | repeat elective        |
| W00            | SE543 Applied Formal Methods         | 9               | repeat elective        |
| S00            | SE500 Data Structures and Algorithms | 17              | repeat core required   |
|                | SE514 Programming Methods            | 25              | new core required      |
| A00            | SE502 Mathematical Foundations       | 16              | repeat core required   |
|                | SE560 Human Computer Interaction     | 20              | repeat elective        |
| W01            | SE593 Computer Ethics                | 12              | new elective           |

## YEAR LONG CAPSTONE PROJECTS (ALL REQUIRED)

| <i>Year</i> | <i>Project</i>              | <i>Sponsor</i>   | <i>Students</i> |
|-------------|-----------------------------|------------------|-----------------|
| 96          | SE585-6-7 KAoS Java         | Boeing           | 5               |
|             | SE585-6-7 KAoS DCOM         | Boeing           | 5               |
| 97          | SE585-6-7 KAoS              | Boeing           | 5               |
|             | SE585-6-7 WebSET            | Rockwell Collins | 5               |
|             | CS487-8-9 Undergrad KAoS    | Boeing           | 5               |
| 98          | SE585-6-7 KAoS              | Boeing           | 5               |
|             | CS487-8-9 Undergrad KAoS    | Boeing           | 5               |
| 99          | SE585-6-7 KAoS              | Boeing           | 5               |
| 00          | SE585-6-7 Boundary Numbers  | Bricken          | 3               |
|             | SE585-6-7 Wireless Listings | Elektrorbit      | 5               |

MSE capstone projects are one year (three quarters) long, although most teams begin in the previous summer. Supervision includes client liaison and assurance, meeting with students especially during difficult times, reviewing all project materials, providing resources and administrative troubleshooting for the team, technical guidance when needed, and in general serving as a source of stability and morale.

## INDEPENDENT STUDY

| <i>Quarter</i> | <i>Course</i>                       | <i>Students</i> | <i>Course type</i> |
|----------------|-------------------------------------|-----------------|--------------------|
| Su97           | SE596C Independent Study            | 2               | new elective       |
| A97            | SE596C Independent Study            | 1               | new elective       |
| Su98           | SE596C Independent Study            | 1               | new elective       |
| 98-99          | SE585-6-7 Independent Study Project | 1               | required capstone  |
| S99            | CS496 Independent Study             | 2               | undergrad elective |
| S99            | SE596 Independent Study             | 1               | new elective       |
| S00            | SE596 Independent Study             | 2               | new elective       |
| Su00           | SE596 Independent Study             | 1               | new elective       |
| A00            | SE596 Independent Study             | 3               | new elective       |

I am deeply committed to providing MSE students with an academic study option. Therefore, I eagerly support independent study students, under three conditions, 1) not too time consuming, 2) I know something about the subject, and 3) the student exhibits a burning desire to do individual work. All these projects are voluntary and not included in my teaching load. This effort has been very rewarding; I have learned a lot from the research projects, students are thrilled, and often this option permits a student to graduate at the end of a year.

## COMMENTARY ON COURSEWORK

Both SE502 (Mathematical Foundations) and SE543 (Applied Formal Methods) have developed into stimulating and innovative courses, with a surprising interest in formal methods from the enrolled students. Formal methods is a strong stream for our program, although enrollment numbers are marginal.

The HCI class, SE560, has begun to be difficult to teach, due to the complete revision of course content over the last four years. The internet has redefined the meaning and tools of HCI, and within a few years, even the desktop metaphor (and probably the concept of personal computers) will be obsolete. HCI itself is in turmoil, again because the HCI of five years ago is largely irrelevant to interface projects and questions today. My own specialization in VR is largely irrelevant to non-entertainment applications.

SE500 too is a teaching challenge. Conventional algorithm analysis addresses toy domains (sorting, searching) which have been over-analyzed, and are now simply functions in several languages. Pointer chasing implementations, so widely stressed in algorithms texts, are obsolete and bias toward antiquated procedural programming approaches. Object-oriented and functional techniques are seen as fields separate to data structures and algorithms. In sum, the content and materials of this topic are substantially obsolete, yet this fact is ignored in conventional course materials. I have been unable to find an appropriately modern textbook.

SE561, Programming the Interface, has shown low enrolment interest. After polling the eligible students, I found that 90% would prefer a course on *Computer Ethics*. I am currently developing such a course for Winter 2001.

SE564 (Computer Graphics) and SE553 (Artificial Intelligence) are both specialty fields that I have actively participated in. Teaching these courses is a joy, since I can bring to bear so much personal experience. The students greatly appreciate being taught a subject by someone who has worked intimately in the field.

My latest course, SE514, Programming Methods, is one I have wanted to teach for quite a while. The first pass at organizing the course was enjoyable, although I am eager to rebuild that curriculum based on the classroom teaching experience. This topic has room for three valid courses over an entire year.

The capstone project teams have surprised me on how much social interaction can dominate technology development, and on the level of emotional/professional immaturity of some of our students. The projects thus provide an excellent context for issues not covered in classrooms.

I am pleased with the initial growth of independent study projects, and hope to continue to support special individual needs of students.