

THE UNIVERSITY OF IOWA

DEPARTMENT
OF COMPUTER SCIENCE

**Undergraduate
Student
Handbook**

2000-2001



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INTRODUCTION

Welcome to The University of Iowa Department of Computer Science, a part of the College of Liberal Arts. The Liberal Arts College is the largest of the 11 colleges at the University, while Computer Science has one of the largest student bodies on campus.

This handbook is designed for students who are already working toward a degree in Computer Science as an undergraduate at this institution. The handbook includes information on degree requirements, departmental rules and regulations, and general information useful to Computer Science majors. It is a supplement to and not a replacement for the *General Catalog* (printed every two years by The University of Iowa and containing information on all Colleges); the *Liberal Arts Bulletin* (printed yearly by the College of Liberal Arts and containing information specific to Liberal Arts); and the *Schedule of Courses* (printed every semester by the Registrar's Office and containing the most recent information). *We recommend that you review both this handbook and the Schedule of Courses each semester before the required meeting with your academic advisor during Early Registration.* The most current information on Computer Science course offerings and course information can be found on ISIS on the Web at <http://isis.uiowa.edu/isis/courses/show-dept/22C>.

This publication and more detailed information on specific areas can be found on our web site at <http://www.cs.uiowa.edu/>. Or feel free to contact us with any questions by email at cs_info@cs.uiowa.edu.

DEPARTMENTAL MISSION STATEMENT

The Department of Computer Science here at The University of Iowa prepares its students for careers as computer professionals. Many of our graduates work in the computer industry in a variety of capacities, creating operating systems, graphics software, and compilers. Many of them work in the software industry creating word processing programs, spreadsheet programs, and games. Another portion work for computer users, creating applications for databases, accounting, robotics, and networks. Finally, some of our graduates work as educators and consultants, both in industry and in schools, at the secondary and college levels.

Two related programs, Electrical and Computer Engineering (ECE) and Management Information Systems (MIS), also train people to work as programmers. The quality that differentiates our students is the depth of their training in programming, at both the practical and theoretical levels. In these other fields, programming is taught as part of a broader study, in the one case, as part of the study of computer hardware and electronics, and in the other case, as part of the study of how organizations, especially businesses, use information technology. In contrast, Computer Science graduates have far deeper coverage of the theory of computing, deeper coverage of the art of computer programming, and more in-depth coverage of the tools used for programming.

Employers rarely use the title computer scientist, although the job title is occasionally used for those with graduate degrees in the field. Rather, most of our graduates are hired as programmers, program analysts, systems analysts, computer engineers, and software engineers. Whatever the title, our graduates are involved in all phases of the software business, from product conception through development, documentation, testing, marketing, maintenance, and end-user training.

DEPARTMENTAL FACULTY AND STAFF

ADMINISTRATIVE STAFF

Department Chair	Professor Steven C. Bruell, 14D MLH 335-0713 email: bruell@cs.uiowa.edu
Associate Chair & Director of Graduate Studies	Professor James F. Cremer, 101P MLH, 335-0736 email: cremer@cs.uiowa.edu
Director of Undergraduate Studies	Professor Douglas W. Jones, 201H MLH, 335-0740 email: jones@cs.uiowa.edu
Cooperative Education and Honors Contact	Professor Douglas W. Jones, 201H MLH, 335-0740 email: jones@cs.uiowa.edu
Administrator	Catherine Till, 14E MLH, 335-0746 email: ctill@cs.uiowa.edu
Graduate Secretary	Jathan Desir, 14 MLH, 335-0707 email: jdesir@cs.uiowa.edu
Department Secretary	Gayle Vande Krol, 14 MLH, 335-0713 email: gvandekr@cs.uiowa.edu

FACULTY MEMBERS

Donald A. Alton

Professor Emeritus, PhD in Mathematics, Cornell University, 1970

Kendall E. Atkinson

Professor of Mathematics and Computer Science, PhD in Mathematics, University of Wisconsin, 1966; email: kendall-atkinson@uiowa.edu

Areas of Research: numerical analysis, scientific computing, the numerical solution of integral equations, the radiosity equation in computer graphics

Robert J. Baron

Professor, PhD in Applied Mathematics, Cornell University, 1968;
email: baron@cs.uiowa.edu

Areas of Research: human brain function, computer architecture

Maria Paola Bonacina

Associate Professor, PhD in Computer Science, State University of New York at Stony Brook, 1992;
email: bonacina@cs.uiowa.edu

Areas of Research: automated deduction, theorem proving, parallel/distributed deduction, strategy analysis, term rewriting systems, and logic programming

Steven C. Bruell

Professor and Chair, PhD in Computer Science, Purdue University, 1978;

email: bruell@cs.uiowa.edu

Areas of Research: queuing network and petri net models of computer systems, operating and computer system theory, distributed systems, simulation

James F. Cremer

Associate Professor and Associate Chair, PhD in Computer Science, Cornell University, 1989; email:

cremer@cs.uiowa.edu

Areas of Research: simulation, virtual environments, computer graphics, integration of numeric and symbolic computing, geometric modeling, problem solving environments

William F. Decker

Adjunct Associate Professor and Associate Vice President, Information Technology Services, MS, University of Iowa, 1968; email: bill-decker@uiowa.edu

Areas of Research: data communications, protocols and network architecture, software engineering, and technology management

David A. Eichmann

Associate Professor of Computer Science and Library & Information Sciences, PhD, University of Iowa, 1989; email: eichmann@cs.uiowa.edu

Areas of Research: intelligent web agents (IWA), repository-based software engineering (RBSE), programming languages, database systems, abstract data types

Donald L. Epley

Professor Emeritus, PhD in Electrical Engineering, University of Illinois at Urbana-Champaign, 1960

Arthur C. Fleck

Professor, PhD in Mathematics, Michigan State University, 1964; email: fleck@cs.uiowa.edu

Areas of Research: program specification and verification, programming language semantics, formal languages, automata theory

Sukumar Ghosh

Professor, PhD in Computer Science, Calcutta University (India), 1971;

email: ghosh@cs.uiowa.edu

Areas of Research: distributed systems, fault tolerance, algorithms, protocols

Ted Herman

Associate Professor, PhD in Computer Science, University of Texas at Austin, 1991;

email: herman@cs.uiowa.edu

Areas of Research: self-stabilization, reliable software constructions, distributed computing, verification, programming languages, information systems

Douglas W. Jones

Associate Professor, PhD in Computer Science, University of Illinois at Urbana-Champaign, 1980;
email: jones@cs.uiowa.edu

Areas of Research: discrete-event simulation; resource protection in architecture, operating systems and system programming languages; the history of computing

Jarkko Kari

Assistant Professor, PhD, Turku (Finland), 1990; email: kari@cs.uiowa.edu

Areas of Research: image and video processing, compression, cellular automata, tilings, cryptography

Joseph K. Kearney

Professor, PhD in Computer Science, University of Minnesota, 1983;

email: kearney@cs.uiowa.edu

Areas of Research: simulation, virtual environments, animation, graphic interfaces

Gregg C. Oden

Professor of Computer Science and Psychology, PhD in Psychology, University of California, San Diego, 1974; email: oden@cs.uiowa.edu

Areas of Research: models of cognition, artificial intelligence, and the nature of meaning

Suely P. Oliveira

Assistant Professor of Computer Science and Mathematics, PhD, University of Colorado at Denver, 1993; email: oliveira@cs.uiowa.edu

Areas of Research: sequential and parallel algorithms, high performance scientific computing, computational aspects of numerical algorithms

Sriram Pemmaraju

Associate Professor, PhD in Computer Science, Virginia Polytechnic Institute and State University, 1992; email: sriram@cs.uiowa.edu

Areas of Research: discrete mathematics, graph theory and algorithms, computational geometry, randomized algorithms, distributed algorithms, and fault-tolerance

Teodor Rus

Professor, PhD in Computer Science, Rumanian Academy, Cluj-Napoca (Romania), 1965;

email: rus@cs.uiowa.edu

Areas of Research: formal tools for language specification, technology for compiler design and implementation, operating system design and implementation, parallel programming, parallel programming environments for high-performance computer system, and integrating parallel programming environments by algebraic compilers

Alberto Segre

Associate Professor, PhD, University of Illinois at Urbana-Champaign, 1987;

email: segre@cs.uiowa.edu

Areas of Research: adaptive systems, distributed search, optimization theory, machine learning, evolutionary computation, data mining, computational biology, artificial life, complex systems, distributed AI, intelligent information agents

Kenneth R. Slonneger

Lecturer, PhD in Mathematics, University of Illinois at Urbana-Champaign, 1971;

email: slonnegr@cs.uiowa.edu

Areas of Research: programming language semantics, functional programming, logic programming

Cesare Tinelli

Assistant Professor, PhD in Computer Science, University of Illinois at Urbana-Champaign, 1999;

email: tinelli@cs.uiowa.edu

Areas of Research: combination methods in automated reasoning, logic and formal methods in Computer Science, logical semantics of programming languages

Kasturi Varadarajan

Assistant Professor, PhD in Computer Science, Duke University, 1998;

email: kasturi@cs.uiowa.edu

Areas of Research: design and analysis of efficient computer algorithms

Hantao Zhang

Professor, PhD in Computer Science, Rensselaer Polytechnic Institute, 1988;

email: hzhang@cs.uiowa.edu

Areas of Research: automatic theorem proving, rewriting systems, equational specifications, software and hardware design verification, and formal methods for software engineering

GETTING STARTED IN COMPUTER SCIENCE

DECLARING COMPUTER SCIENCE AS A MAJOR

Undergraduates are initially and by default admitted to the BA degree program when you declare Computer Science as your major. You can do this in one of three places:

- ✓ on the University Admission application form,
- ✓ in the Liberal Arts Academic Programs Office (120 Schaeffer Hall), or
- ✓ in the Academic Advising Center (1100 Quadrangle).

The last two methods must be done in person and with your student identification card. All students begin with the following subset of core courses - what we call the four foundation courses:

- 22C:016 Computer Science I 4 s.h.
- 22C:020 Computer Science II 4 s.h.
- 22C:030 Computer Science III 3 s.h.

and one of the following calculus courses:

- 22M:021 Calculus and Modeling I 4 s.h.
- 22M:025 Calculus I 4 s.h.
- 22M:035 Engineering Calculus I 4 s.h.

You must achieve a grade of at least C- in each of these classes in order to continue in the major. When 22C:020 has been completed, you may request to be admitted to the BS program if you have earned at least a 2.46 grade point average (GPA) in 22C:016, 22C:020, 22C:030 and the calculus course, and have a 2.00 GPA overall. The application must be done in person and in the departmental office, (see Appendix VI). Students initially rejected for the BS program can write a letter to the CS Director of Undergraduate Studies asking for reconsideration based on more advanced course work. Your request may be left with the Department Secretary.

The Department may approve transfer courses as substitutes for any of the core courses, as appropriate, if a grade of B- or higher was earned. To request such approval, see the "Transfer and Other Credit" section on page 20.

For course work taken at a non-U.S. institution, the UI Admissions Office will assign a grade of CR (for credit) or S (for satisfactory) in place of the actual letter grade (such as A, B, etc.). These grade equivalents will show on your University of Iowa Degree Evaluation (DELI).

ADVISORS

Every student in the Department has an adviser to consult with about academic and other issues. Students new to the University are advised by the Academic Advising Center (AAC) at 1100 Quadrangle. AAC advisors are knowledgeable about the General Education Program of the College of Liberal Arts, as well as about the Computer Science program. They will consult with members of the Computer Science faculty when questions arise. If your AAC advisor is unable to answer a question, you are encouraged to seek advice from a Computer Science faculty member. They are

available by email, during office hours, or by appointment. Their email addresses are listed in the Faculty Members section of this Handbook, beginning on page 6, and their office hours are posted on the Computer Science web site, or a directory list may be picked up in the Computer Science departmental office (14 MacLean Hall, or phone 335-0713).

After Computer Science majors have completed 22C:020 with any grade of D- or higher, or after they have earned 90 semester hours, they are assigned a Computer Science faculty member as their advisor. Advisor assignments for students appear in all of the following places:

- ✓ on the Computer Science web site (http://www.cs.uiowa.edu/People/students_advisors.html)
- ✓ on your degree evaluation
- ✓ on the "enrollment summary" section, under Student Records, of *ISIS on the Web*

You are required to meet with your advisor at least once a semester, preferably before Early Registration, in order to plan your courses and obtain your registration number. We strongly suggest you keep in closer contact than the minimum required. An academic advisor can be a wealth of information regarding University, collegiate and departmental rules and regulations, as well as possessing information regarding research options, job opportunities and graduate programs.

PURCHASE OF PERSONAL COMPUTER/UNIX ACCOUNT

The Department does not require its majors to purchase a personal computer. However, we realize that many students will be interested in doing so for purposes of email, word processing, terminal access, and programming.

Computer Science majors will, at some point, need access to a Unix account (typically during your second course, 22C:020). An application for a Unix account can be picked up in 14 MLH. Information on using Unix and other helpful information on the computing resources in the Department of Computer Science can be found at <http://www.divms.uiowa.edu/help/> or http://hotwired.lycos.com/webmonkey/reference/unix_guide/.

DEGREE REQUIREMENTS

Earning a Computer Science degree requires a unique mixture of skills in mathematics, programming languages and Computer Science. Students may pursue either a Bachelor of Arts (BA) or a Bachelor of Science (BS). The BA is offered in the spirit of a traditional liberal arts education, while the BS puts greater emphasis on the depth of study in this field, thereby requiring a greater background in natural sciences and either mathematics or statistics. Students who plan on pursuing a BS should pay particular attention to how they satisfy the Natural Sciences requirement of the General Education Program. To apply for a BS degree, a student must have earned at least a 2.46 GPA in the four foundation courses and must have a 2.00 overall GPA. The application form can be picked up in the departmental office.

COMPUTER SCIENCE REQUIRED COURSES

Note 1: None of these courses may be taken Pass/Non-Pass.

Note 2: Computer Science major courses (22C:020-22C:054, but not 22C:036), will be coded for Computer Science majors only during official Early Registration. When Early Registration is over, the courses will be opened up to all other students.

COMPUTER SCIENCE REQUIRED COURSES CHECKLIST

	Course Name/Number	Credit Hours
Computer Science core* (both degrees)		
<input type="checkbox"/>	22C:016 Computer Science I	4 s.h.
<input type="checkbox"/>	22C:020 Computer Science II	4 s.h.
<input type="checkbox"/>	22C:030 Computer Science III	3 s.h.
<input type="checkbox"/>	22C:034 Discrete Structures	3 s.h.
<input type="checkbox"/>	22C:040 Computer Organization and Hardware	4 s.h.
<input type="checkbox"/>	22C:044 Algorithms	3 s.h.
<input type="checkbox"/>	22C:050 Introduction to Systems Software	3 s.h.
<input type="checkbox"/>	22C:054 Programming Language Concepts	3 s.h.

* All Computer Science core courses are offered each fall and spring, and many are offered during summer session.

Mathematics (both degrees)		
<input type="checkbox"/>	22M:021, or 22M:025, or 22M:035: all versions of Calculus I**	4 s.h.
<input type="checkbox"/>	22M:022, or 22M:026, 22M:036: all versions of Calculus II**	4 s.h.
<input type="checkbox"/>	22M:027 Introduction to Linear Algebra OR 22M:047 Linear Algebra and Differential Equations for Scientists	4 s.h.
TOTAL FOR BA = 39 s.h.		

Additional Courses Required for BS		
<input type="checkbox"/>	Natural Science (BS only)**	8 s.h.
<input type="checkbox"/>	Additional Mathematics/Statistics (BS only) 22C:036/22M:072 (Elementary Numerical Analysis), 22S:120 (Probability and Statistics), 22S:039 (Probability and Statistics for the Engineering and Physical Sciences) or any other probability and statistics course with a calculus prerequisite will fulfill this requirement of the degree.	3 or 4 s.h.
<input type="checkbox"/>	Advanced Computer Science courses (BS only)*** Cannot include courses used to satisfy the additional Mathematics/Statistics requirement.	6 s.h.
(minimum) TOTAL FOR BS = 56 s.h.		

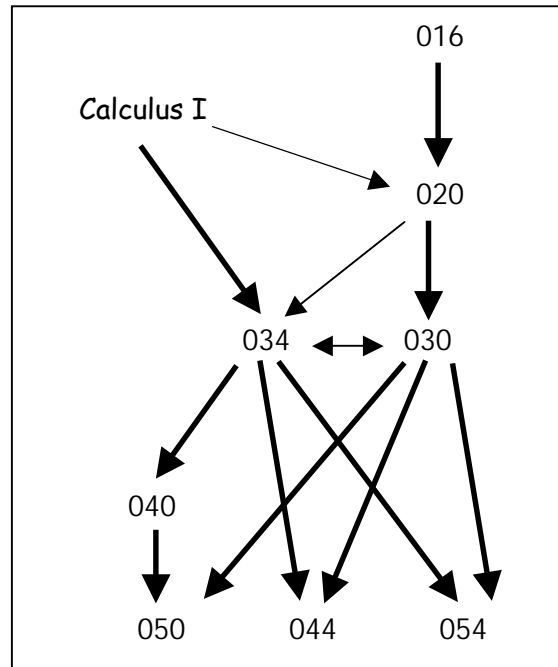
**See the Natural Science section on page 15

***See Advanced Courses on page 16

PREREQUISITE STRUCTURE OF COMPUTER SCIENCE CORE COURSES

- 22C:016 Computer Science I
- 22C:020 Computer Science II
- 22C:030 Computer Science III
- 22C:034 Discrete Structures
- 22C:040 Computer Organization and Hardware
- 22C:044 Algorithms
- 22C:050 Introduction to System Software
- 22C:054 Programming Language Concepts

A thick arrow indicates prerequisite.
A thin arrow indicates a pre- or co-requisite.



Please note that a grade of C- or higher must be earned in a prerequisite course before enrolling in the subsequent course.

THE FOUR-YEAR PLAN

An idealized four-year plan of study for a BA/BS degree in Computer Science at The University of Iowa would involve an average of two courses per semester to meet departmental requirements. The presentation here is made for an "ideally prepared" student; in fact, a large fraction of our students enter the major late in their college careers or come back to school for a second degree

First Semester:

Computer Science I (22:016)
Calculus I (22M:025)

Second Semester:

Computer Science II (22C:020)
Discrete Structures (22C:034)

Third Semester:

Computer Science III (22C:030)
Calculus II (22M:026)

Fourth Semester:

Computer Organization and Hardware (22C:040)
Programming Language Concepts (22C:054)

Fifth Semester:

Algorithms (22C:044)
Introduction to Linear Algebra (22M:027)

Sixth Semester:

Introduction to Systems Software (22C:050)
Natural Science Sequence (BS students)

Seventh Semester:

Technical Elective (BS students)
Natural Science Sequence (BS students)

Eighth Semester:

Statistics Course (BS students)
Technical Elective (BS students)

There is considerable scheduling flexibility in the later part of this sequence. Calculus II and Linear Algebra can be deferred until later, so long as no technical elective requires them. The Natural Science requirement for the BS degree can also be taken in earlier semesters and can also satisfy the General Education Requirements.

REQUIREMENTS FOR THE BA DEGREE IN COMPUTER SCIENCE

A total of 39 semester hours, of Computer Science core and Mathematics courses (as discussed above), must be completed for this degree. Students must also meet the requirements set by The University of Iowa and the College of Liberal Arts, as outlined in the *Schedule of Courses*. This includes earning 124 semester hours of credit, meeting a residency requirement, and completing the General Education Program. *You may use up to 16 hours of Pass/Non-pass credit for your total of 124 semester hours, as long as they are not courses for your major, or courses in the General Education Program (including four years of the same language in high school).*

All students must earn a minimum GPA of 2.00 in:

- 1) all college work attempted;
- 2) all work undertaken at the University of Iowa;
- 3) all University of Iowa major work, and
- 4) all work attempted in the major field.

REQUIREMENTS FOR THE BS DEGREE IN COMPUTER SCIENCE

To receive a BS in Computer Science, you must apply for admission only after completing the first four core courses (see "Declaring Computer Science as a Major") section, page 10; meet all of the BA degree requirements (see paragraphs above); and complete additional coursework in natural science, mathematics/statistics, and advanced Computer Science.

DEPARTMENTAL NATURAL SCIENCE REQUIREMENTS

Even if you have satisfied the Liberal Arts General Education Program in Natural Sciences, you may still need additional course work to satisfy the departmental requirement for additional course work in natural science for the BS in Computer Science. However, if you and your advisor plan carefully, the departmental natural science requirement and the General Education Program natural science requirement may dovetail, thereby avoiding the necessity of extra hours.

This natural science requirement for the BS in Computer Science has several purposes. The primary intention of this requirement is to direct you to complete the Liberal Arts General Education Program in natural sciences in a way that best enhances perspective in the study of Computer Science. Taking such a sequence of courses should provide you with a deeper understanding of the scientific method. For the BS, students take two or more courses in a sequence required of majors in a chosen area of natural science. The first course must be a pre- or co-requisite to the second. It is typical, but not required, that these courses be taken in the same science department. This cognate sequence must total at least 7 semester hours.

Following are some BS course sequences that will satisfy the departmental natural science requirement. The CS Director of the Undergraduate Studies must approve alternatives suggested by a student.

Astronomy	
29:61 General Astronomy (GEP, lab)	4 s.h.
29:62 General Astronomy (GEP, lab)	4 s.h.

Biology	
4:013 Principles of Chemistry I (GEP)	3 s.h.
2:010 Principles of Biology I (GEP, lab)	4 s.h.
2:011 Principles of Biology II (strongly recommended)	4 s.h.
Botany	
2:001 Introduction to Botany (GEP, lab)	4 s.h.
2:100 Plant Diversity and Evolutionary	4 s.h.
Chemistry	
4:013 Principles of Chemistry I (GEP)	3 s.h.
4:014 Principles of Chemistry II (GEP)	3 s.h.
4:016 Principles of Chemistry Lab I (GEP, lab)	2 s.h.
Physics	
29:017 Introductory Physics I (GEP, lab)	4 s.h.
29:018 Introductory Physics II (GEP, lab)	4 s.h.

ADDITIONAL MATHEMATICS/STATISTICS FOR A BS IN COMPUTER SCIENCE

Elementary Numerical Analysis (22C:036/22M:072), Probability and Statistics (22S:120), Probability and Statistics for the Engineering and Physical Sciences (22S:039), or any other probability and statistics course with a calculus prerequisite will fulfill this requirement of the degree.

ADVANCED COURSES FOR A BS IN COMPUTER SCIENCE

These courses cannot be taken using the Pass/Non-pass grading option. Students with certain special elective programs may petition for courses not listed here to be accepted for this requirement. (Refer to "Petitions Concerning Departmental Requirements") on page 20. If taken more than once, the course 22C:099 (Honors in Computer Science), 22C:196 (Topics in Computer Science), and 22C:198 (Individual Programming Projects) can be used as only one of the two additional courses required for a BS degree.

22C:036/22M:072	Elementary Numerical Analysis*
22C:096	Topics in Computer Science**
22C:099	Honors in Computer Science
22C:116	Advanced Operating Systems
22C:122	High Performance Computer Architecture
22C:123	Programming Language Foundations
22C:125	Data: Abstractions, Types and Structures
22C:127	Introduction to Compiler Constructions

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22C:132	Parallel Programming
22C:133	Genetic Algorithms
22C:135	Introduction to Computation Theory
22C:144	Database Management Systems
22C:145	Artificial Intelligence
22C:151	Computer Graphics
22C:153	Design and Analysis of Algorithms
22C:167	Theory of Graphs
22C:170	Numerical Analysis: Nonlinear Equations and Approximation Theory
22C:171	Numerical Analysis: Differential Equations and Linear Algebra
22C:174	Optimization Techniques
22C:177	Parallel and High Performance Algorithms in Scientific Computing
22C:178	Computer Communications
22C:180	Fundamentals of Software Engineering
22C:181	Formal Methods in Software Engineering
22C:182	Software Engineering Languages and Tools
22C:183	Software Engineering Project
22C:189	Software Engineering Project Management
22C:193	Topics in Programming Languages
22C:194	Topics in Systems and Networks
22C:195	Topics in Software Engineering
22C:196	Topics in Computer Science ***
22C:197	Readings in Computer Science
22C:198	Individual Programming Projects (if repeated, counts as only one advanced course) ***
22M:176	Finite Element Method

* If 22C:036/22M:072 is used to fulfill the additional math/statistics requirement, then it cannot also be counted as an advanced course for the BS degree.

** Only some offerings of 22C:096 satisfy the advanced course requirement. Check with your advisor before enrolling in the class.

*** If taken more than once, this course can be used as only one of the two additional courses required for a BS degree.

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For students who have the ability and have excellent preparation in high school, the Accelerated Calculus sequences should be considered.

The sequence of 22M:040 (Matrix Algebra for Engineers) and 22M:041 (Differential Equations for Engineers) can be substituted for 22M:027 (Introduction to Linear Algebra). If 22M:040/22M:041 is used, the grades of the two courses will be averaged for departmental GPA computations.

DEPARTMENTAL GPA REQUIREMENTS

To satisfy the College of Liberal Arts' major GPA requirements, you must have a GPA of 2.00 or higher in the following courses to receive a BA or BS degree in Computer Science:

- All 22C courses except those numbered below 22C:016 and those numbered 22C:100 through 22C:113 and
- Mathematics (22M) and Statistics (22S) courses which are required as an integral part of the major requirements. (For the BA degree, such courses would be 22M:025, 22M:026, and 22M:027, or their equivalents. For the BS degree, this would include 22M:025, 22M:026, and 22M:027, or their equivalents, and 22S:120 or 22M:072 or 22S:039.)

After each session (including summer sessions), the Registrar's Office calculates a Computer Science major GPA for each student. This average appears on your degree evaluation. The Computer Science major GPA is based on the courses that you have taken to date and include transfer grades for any transfer courses approved as substitutes for such courses.

EARNING A MINOR IN COMPUTER SCIENCE

The minor in Computer Science requires a minimum of 16 semester hours of coursework, at least 12 of which must be taken from University of Iowa advanced courses. (NOTE: The term advanced courses here has a different meaning than it does in the context of the BS major.) The following are the course requirements for the minor:

The minor must include:

22C:016 Computer Science I	4 s.h.
22C:020 Computer Science II	4 s.h.
22C:030 Computer Science III	3 s.h.

Note: These three introductory courses are considered advanced for the purpose of the minor.

One or more of the following advanced level courses:

22C:005 Problem Solving and Computing*	3 s.h.
22C:034 Discrete Structures	3 s.h.
22C:036 Elementary Numerical Analysis	3 s.h.
22C:040 Computer Organization and Hardware	4 s.h.
22C:044 Algorithms	3 s.h.
22C:050 Introduction to Systems Software	3 s.h.

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22C:054 Programming Language Concepts	3 s.h.
22C:096 Topics in Computer Science	arr.
Any course between 22C:116-198.	

**Note: To avoid regression, 22C:005 must be taken BEFORE OR CONCURRENT WITH 22C:016.*

The minor may, but is not required to include one of the following programming language-specific courses.

22C:009 Programming with COBOL	3 s.h.
22C:010 Programming with C	3 s.h.
22C:012 Programming with C++	3 s.h.

Grade-point requirement for minor: No course accepted toward the minor may be taken Pass/Non-pass. A student must have at least a 2.00 grade point average on all work attempted in the minor department.

Students in Electrical and Computer Engineering (ECE) must consult the Computer Science Department's Director of Undergraduate Studies before commencing the minor, or as soon as possible after that. The minor as defined above may not be appropriate for all ECE students because of the possible duplication of courses between ECE and CS. The Department's Undergraduate Studies Director must approve a set of courses for each ECE student, and will notify Graduation Analysis of changes in a student's program requirements.

Transfer credit for minor: Transfer students may use a maximum of four semester hours of transfer course work toward a minor since the College of Liberal Arts stipulates that at least 12 semester hours have to be advanced courses at The University of Iowa in the minor department. To request a substitution, contact the departmental secretary. The transfer course should involve at least three semester hours of credit and should be based on Pascal, C, C++, or Java in order to merit serious consideration for exemption from the 22C:016 requirement. (See "Transfer Credit" section on page 20 for more information.)

Applying for the minor: You only apply for a minor in Computer Science when you file an application for degree. No other paperwork is required.

DEGREE EVALUATIONS

Every student enrolled in the College of Liberal Arts receives a degree evaluation (DELI) each semester. It is important to learn to read your degree evaluation, as it is a complete summary of your academic progress from admission to graduation. The DELI lists the requirements for your major, tracks your completion of the General Education Program, and computes both your UI GPA and major GPA. If you participate in the Four-Year Graduation Plan, the agreement is printed on your degree evaluation, as a guide for you and your advisor.

The first rule of thumb is to pay attention to anything printed in red, especially on your Final Degree Evaluation, prepared when you file an Application for Degree, as those are unfulfilled requirements and/or problem areas. The red type is designed to alert you and your advisor.

Prior to your final semester, red ink on your degree evaluation is not a cause for panic or an emergency advising appointment, but if the degree evaluation flags a degree requirement that you think you have already met, please discuss it with your advisor.

Questions regarding your evaluation or your academic progress may also be addressed to a staff person in the Liberal Arts Academic Programs Office (120 SH), or at the Graduation Analysis window in the Office of the Registrar (1 JH).

PETITIONS CONCERNING EXCEPTIONS TO REQUIREMENTS

If you feel you have reasonable grounds to petition for an exception to the requirements of the College of Liberal Arts (e.g., an exception to the General Education Program), you should contact the Liberal Arts Office of Academic Programs (120 SH, 335-2633).

If you want an exception to a Computer Science requirement, you should submit a petition to the Department Secretary. Before submitting a petition, you must discuss it with your advisor and obtain their signature on it, as an assurance to the Department that the advisor is aware of what's happening, even if they do not agree with the exception and course of action requested. Petitions without such a signature will not be considered.

Petition forms may be obtained from and submitted to the Department Secretary, who will forward them to the Director of Undergraduate Studies. Be sure to include your current local address on the form and a current local phone number and/or email address, in case the Director has questions. The Director will consider petitions, approve or reject them, and then notify you and the advisor of the decision, as well as Graduation Analysis. A copy of the letter will be placed in your departmental file.

If you feel you have received an unfair grade in a particular course, this should be pursued through the Grading Grievance process (see page 25).

TRANSFER AND OTHER CREDIT

Transfer Credit

The Admissions Office analyzes transfer credit when a student applies to The University of Iowa, and your Degree Evaluation (DELI) will give you information about how much total transfer credit was accepted.

The Admissions Office only evaluates transfer courses that may possibly be equivalent to General Education Program (GEP) courses and courses covered by formal articulation agreements with other universities and colleges. Those courses accepted by the Admissions Office as satisfying general or departmental requirements will be listed on your DELI. If you have questions about transfer credit, contact the Admissions Office in 108 Calvin Hall.

Transfer students should consult the Liberal Arts section of the *General Catalog* or the *Schedule of Courses* for regulations concerning admission requirements, residence requirements, ways of satisfying the General Education Program, etc. It is important to distinguish between transfer credit per se and possible use of a course taken elsewhere to exempt you from one of our course requirements.

Students who already have a BA or BS degree should consult as soon as possible, first with Admissions, then with the Computer Science Director of Undergraduate Studies.

Exemption from Computer Science Required Courses

If you are trying to determine whether a specific Mathematics or Computer Science course that was taken at another institution will exempt you from one of our requirements for a specific course, here is what to look for:

1. If the course you want to be exempted from is a) a required Computer Science course, b) is not part of an existing formal articulation agreement, and c) you received a grade of C+ or lower in the course elsewhere, then you will not be exempted from taking the course here.
2. If the University later determines that duplication occurred, then the total hours required for a degree will be increased by the amount of duplicate transfer credit awarded. Note: in some cases, if you want to retake a course you took elsewhere, it may be to your advantage not to have the University notice that they are equivalent.

If your advisor is a member of the Computer Science faculty, he or she will determine if you are exempt from a Computer Science requirement, possibly after consultation with the Undergraduate Director or the instructor(s) of the course.

In order to facilitate the evaluation process, you may want to have this information when you consult with an advisor:

- a. A copy of your transcript from the other institution (this need not be an official copy). The transcript should show the course title, grade earned, and number of credit hours earned at that institution. (Official transcripts submitted at the time of application are kept in the Admissions Office and later in the Registrar's Office. They are not routinely forwarded to departments.)
- b. The catalog description. A photocopy of the relevant page and of the catalog's title page will be sufficient.
- c. The syllabus of the course, containing information on the title and author of the textbook(s) and the chapters covered, and exams and programming assignments.

When course work at another institution is used to fill some of the Department's program requirements, and if the University accepts that course work for transfer credit with a letter grade, then that transfer grade is used in the departmental GPA calculations. Note that the transfer grade must be a B- or higher. The grade is weighted in GPA calculations by the minimum of either the number of semester hours of the course work taken elsewhere or the number of semester hours of the equivalent course here.

For course work taken at a foreign institution, the Admissions Office assigns a grade of "R" (for credit) or "S" (for satisfactory) in place of the actual letter grade (such as "A," "B," etc.) on your University of Iowa DELI.

ACADEMIC RECORDS AND REGULATIONS

Pass/Non-Pass (P/N) Grading Option

Students in the College of Liberal Arts have the option of taking elective courses that are not related to departmental requirements P/N. The instructor assigns a standard letter grade, which is converted in the Office of the Registrar. Grades of A+, A, A-, B+, B, B-, C+, C and C- are converted to P; grades of D+, D, D-, and F are converted to N. There is a maximum of 16 s.h. allowed for the P/N grading option. For complete guidelines, see the "Grading" section under the College of Liberal Arts in the *Schedule of Courses*.

Satisfactory/Fail (S/F) Grading

Certain courses in the College of Liberal Arts are offered S/F and are so designated in the *Schedule of Courses*. All students registered for these courses receive an S or an F. For complete guidelines, see "Grading" under the College of Liberal Arts section in the *Schedule of Courses*.

Adding and Dropping Courses

Once classes have begun, courses may be added or dropped before the posted deadlines (see *Schedule of Courses*) with the signatures of both the advisor and instructor on a Change of Registration form. The form must then be processed at the Registration Center.

Students who fail to attend class are not dropped from the course automatically. It is the student's responsibility to initiate the drop process, as it is only under special conditions that an instructor may drop a student from a course. Students not attending the class will be assigned a grade of F at the end of the semester.

If a course is dropped before the Withdrawn deadline for each semester, it does not appear on your transcript. However, if a course is dropped after that deadline, a mark of "W" is assigned. Students are limited to an overall maximum of five Ws while they are enrolled in the College of Liberal Arts. First-year students entering the University directly from high school, with no prior full-time college experience, are permitted to exclude Ws they receive during their first two sessions of enrollment.

Students may withdraw their entire registration any time before the published deadlines. No credit is given for the semester or session, but the withdrawal is noted on the transcript. Students considering withdrawing their entire semester registration should contact their academic advisors.

For more information about either of these actions, see the *Liberal Arts Bulletin*.

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Plus/Minus Grading

The following grading system is used in the College of Liberal Arts:

GRADE	DESCRIPTION	GRADE POINT	OTHER MARKS ON THE PERMANENT RECORD Not used in computing GPA	
A+		4.33	S	Satisfactory
A	Superior	4.00	P	Pass
A-		3.67	N	Non-pass
B+		3.33	I	Incomplete
B	Above Average	3.00	O	No Grade Reported
B-		2.67	R	Registered
C+		2.33	I	Incomplete
C	Average	2.00	W	Withdrew
C-		1.67	#	Second-Grade-Only-Option
D+		1.33	*	Honors
D	Below Average	1.00		
D-		0.67		
F	Failing	0.00		

Repeating Courses-Duplication & Regression

Duplication occurs when a student takes the same University of Iowa course more than once, or when they take a course that repeats the content of a satisfactorily completed course. The Registrar's Office determines whether duplication has occurred and notes it on the Degree Evaluation at the end of the semester. If duplication has occurred, you must earn hours to replace those earned by duplication. Grades for both courses will be used in computing your grade point average.

Regression: Departments and programs sometimes identify courses as part of particular learning sequences that require a progression from one course to the next. Regression occurs when a student takes a course that is earlier in the sequence than a course already taken and passed. NOTE: Regression is identified only at the time of the final graduation analysis, and hours of regression do not count toward graduation. If regression has occurred, you must earn hours to replace those earned by regression. Grades for both courses will be used in computing your grade point average. Current regression sequences are listed in the "Courses Without Degree Credit" under the College of Liberal Arts portion of the *Schedule of Courses*.

The following courses may be repeated for full credit:

- 22C:000 Cooperative Education Training Assignment
- 22C:002 First-Year Seminar
- 22C:096 Topics in Computer Science
- 22C:099 Honors in Computer Science

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The following table is a course-by-course list of which undergraduate Computer Science course sequences count as regression. An X at the intersection of a row and column in this table indicates that the course that labels that column should not be taken after the course that labels that row.

COURSE	001	005	009	010	012	013	016	020	030	034	036	040	044	050	054
22C:001	X														
22C:005	X	X													
22C:009	X		X												
22C:010	X			X											
22C:012	X			X	X										
22C:013	X				X	X	X								
22C:016	X	X				X	X								
22C:020	X	X				X	X	X							
22C:030	X	X			X	X	X	X	X	X					
22C:034	X	X					X			X					
22C:036	X										X				
22C:040	X	X					X	X		X		X			
22C:044	X	X			X	X	X	X	X	X			X		
22C:050	X	X			X	X	X	X	X	X		X		X	
22C:054	X	X			X	X	X	X	X	X					X

In all other cases, repeating a course adds correspondingly to the required credits for graduation, making the repetition equivalent to regression. In summary, regression occurs when the following courses are taken:

- 22C:001 if taken after 22C:005 to 22C:054 (inclusive)
- 22C:005 if taken after 22C:016, 020, 030, 034, 040, 044, 050, or 054
- 22C:010 if taken after 22C:012
- 22C:012 if taken after 22C:013, 030, 044, 050, or 054
- 22C:013 if taken after 22C:016, 020, 030, 044, 050 or 054
- 22C:016 if taken after 22C:013, 020, 030, 034, 040, 044, 050 or 054
- 22C:020 if taken after 22C:030, 040, 044, 050 or 054
- 22C:030 if taken after 22C:044, 050 or 054
- 22C:034 if taken after 22C:030, 040, 044, 050 or 054
- 22C:040 if taken after 22C:050

Second-Grade-Only Option

Students may repeat a limited number of courses taken at the University of Iowa, unless regression is involved, and have only the grade and credit of the second registration used in calculating total hours earned as well as in computing GPAs. Under the provisions of this option, the Office of the Registrar marks the permanent record with the symbol # to show that a particular course has been repeated under the provisions of the second-grade-only option. *Both grades remain on the*

permanent record, but only the second one is used in calculating the grade point averages and hours earned.

Students who wish to use this option register in the usual manner for the course that is to be repeated or add it during the regular period for adding courses. Students also must file for the second-grade-only-option in the Office of Academic Programs (120 Schaeffer Hall), and may do so beginning the second week of classes in the session in which the course is retaken. Unless and until the second-grade-only-option is filed, both grades continue to be counted in the GPAs.

If a student repeats a required course using the second-grade-option and receives a grade of F, then policies of the College of Liberal Arts dictate that the F replaces the first grade (even if the first grade was higher).

For more information on the rules and regulations of a Second Grade Option, see the *Liberal Arts Bulletin*.

If a student repeats a course without using the SGO, then both grades are included in the Computer Science major GPA.

Prerequisites

A grade of C- or higher must be earned in Computer Science courses (and relevant Mathematics courses) that are used as prerequisites to other Computer Science courses.

Resuming Study in Computer Science After an Absence

Students resuming study in the Computer Science major after an absence of one or more semesters will be held to all departmental requirements that are in effect at the time of return. Examples are:

- a) Non-registration for a semester or more (this does not apply to summer absences for students registered for the preceding spring and the following fall semester).
- b) A change back to the Computer Science major from another major by a student who had once been in the Computer Science major.

Grading Grievances

If possible, grading grievances should be resolved with the instructor who assigns the disputed grade. If you and instructor cannot resolve the matter, you should discuss the matter further with the department chair. When necessary, the chair may refer unresolved grading grievances to the Associate Dean for Academic Programs.

Academic Integrity

Forging of signatures on Change of Registration slips or any other official University of Iowa document can result in serious penalties. Such behavior is a disciplinary matter that will be referred to the Liberal Arts Office of Academic Programs.

The department is committed to prosecuting all cases of cheating on exams, homework, and programming projects to the maximum extent permitted by the College of Liberal Arts, and records of offenders are kept. Penalties may range from an F in a particular course to suspension from the

College or even expulsion from the University. In addition, the Liberal Arts Office of Academic Programs may place a student on disciplinary probation.

It is part of the University of Iowa policy that all work on exams must be your own and that the general organization and detailed write-up of a student's homework and programming projects must be their own, unless the instructor explicitly makes exceptions (which happens most frequently for group programming projects). Consult the instructor about whether you are able to talk to classmates and others about initial ideas and approaches to homework and programming projects.

Computer systems place a great deal of power and access to information in users' hands. The following list, though incomplete, specifies some of the ethical responsibilities that accompany the considerable power available to computer users:

- Users should apply normal standards of academic ethics and polite conduct to their use of computing services, including the respect of privacy.
- Users should not encroach on others' use of the computer. The most obvious examples are attempts to modify the system or cause it to crash. Less obvious are such things as tying up computer resources for excessive game playing or trivial applications, using excessive amounts of permanent file space, or running grossly inefficient programs where efficient ones are available.
- Users should not try to access the accounts or private files of others, even if those files are unprotected. Using another person's program or procedure without permission is equivalent to plagiarism. Users requiring program information should request it formally from its owner or from persons responsible for its maintenance.
- The academic computing facilities of the University are limited and should be used wisely and carefully. Computer services allocated to individuals through their user numbers should be respected by all as private and valuable property for academic pursuits.
- Most software for personal computers is protected by licenses and copyrights. Making unauthorized copies for personal use is illegal and unethical.

Misuse of computer resources is a serious offense. Any person who commits acts of misuse shall be subject to disciplinary action by the University.

Student Academic Misconduct

The Department of Computer Science has adopted the definitions and disciplinary actions outlined by the College of Liberal Arts in cases of student academic misconduct.

Because plagiarizing cases have become more numerous within the past two years, the College has designed a clear policy in dealing with this situation.

If you have questions or want further information on this subject, please check the *Liberal Arts Bulletin*, or contact the program assistants in the Office of Academic Programs, 120 Schaeffer Hall, 335-2633, or the Computer Science Undergraduate Director.

You are plagiarizing or cheating if you:

- a) Present the ideas of others as your own without giving credit to the source

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- b) Use direct quotations without quotation marks and without giving credit to the source
- c) Paraphrase without crediting the source
- d) Participate in a group project that presents plagiarized materials
- e) Fail to provide adequate citations for material obtained through electronic research
- f) Download and submit work from electronic databases without citation
- g) Submit materials written by someone else as your own. This includes purchasing a term or research paper.
- h) Allow someone to copy or submit one's own work as his or her own
- i) Copy someone else's exam, graded homework, or laboratory work
- j) Submit the same paper in more than one course without the knowledge and approval of the instructors
- k) Using notes or other materials during a text or exam without authorization
- l) Not following the guidelines specified by the instructor for a "take-home" test or exam
- m) Accept credit for a group project without doing one's share

Disciplinary Action by the Instructor

An instructor who suspects you of plagiarism or cheating must inform you as soon as possible. Instructors who detect cheating or plagiarism may, in consultation with the Department Chair, decide to reduce your grade for the assignment or even to assign an F. The Department Chair sends a written report of the facts in the case and the action taken by the instructor to the Associate Dean for Academic Programs; a copy is sent to the student.

Disciplinary Action by the Dean

The Associate Dean for Academic Programs or the Committee on Student Academic Conduct may uphold, as the offense warrants, the following or other penalties: placement on disciplinary probation until graduation, suspension from the College for a semester or longer, or recommendation of expulsion from the University by the President.

Appeals

If you feel that the finding of plagiarism or cheating is in error or the penalty unjust, you may request a hearing. Complete information is available in the Office of Academic Programs.

Record of Disciplinary Action

Reports of student academic misconduct reside only in the Office of Academic Programs and are destroyed when the student graduates, or after five years if the student has left the University or has not graduated. Notation of disciplinary action does not appear on a student's permanent record.

Student Complaints Concerning Faculty Actions

The procedures described below apply to complaints concerning any member of the teaching staff in the Department of Computer Science, in regard to grading grievances, inequities in assignments, inappropriate course materials, inappropriate faculty conduct, or incompetence in oral communication.

An attempt to resolve the matter with the instructor should be made first.

If the complaint is not resolved there, go to the course supervisor (if the instructor is a teaching assistant), to the Department Chair or, in some departments, to the person designated to hear complaints to discuss the matter further.

If the matter remains unresolved, submit a written complaint to the Associate Dean for Academic Programs, Office of Academic Program.

The Associate Dean will attempt to resolve the complaint and will respond in writing regarding the disposition of the complaint.

DOUBLE MAJORS AND MINORS

Courses used to satisfy requirements for the GEP, minors, or other majors may also be used to satisfy departmental requirements. However, note that the same may not be true in other departments. It would be wise to consult the relevant minor or major department.

Double Majors and Multiple Degrees

You may meet the major requirements in more than one department, and, if the departments award the same degree, you may earn a single bachelor's degree with two or more majors (for example, a BA in Computer Science and Linguistics or a BS in Computer Science and Physics). Double majors cannot be earned unless both departments or programs are in the College of Liberal Arts. (For joint programs with Engineering, see the discussion of degrees on page ??.)

No more than 50 semester hours of credit may be earned in one department of study and applied toward a BA or BS degree from the College of Liberal Arts. For the purposes of this rule, the degree program in Computer Science is considered a separate degree-granting unit distinct from the other units in the Division of Mathematical Sciences. If you are using this provision (e.g., to earn a BS with a double major in Computer Science and Mathematics), you must earn a minimum of 56 semester hours in courses taken outside the Division of Mathematical Sciences.

If you are seeking an additional different bachelor's degree (e.g., you have a BA in Mathematics and are seeking a BS in Computer Science), you must complete at least 30 additional consecutive hours of study in residence in the College beyond the first degree. Holders of the BA and BS degrees earned in the College of Liberal Arts will be considered to have satisfied all the College requirements for graduation except the foreign language requirement. Holders of other degrees must meet College course requirements.

Multiple Degrees in Computer Science and Engineering

You may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the College of Engineering and Liberal Arts. To enter the combined degree program, you must be eligible for admission to both colleges. If you are interested, you should schedule an appointment with the assistant to the dean of the College of Engineering. You must be approved for candidacy in the combined degree program; must be admitted to both colleges; and must develop an approved plan of study. It is crucial to enroll in the proper mathematics, engineering, and computer science courses early in the program to minimize the time required to complete the combined degree program. If you are in the combined program, you can normally meet the baccalaureate degree

requirements for both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major area of study selected in Engineering. You need to earn at least 30 semester hours from each college, and a total of 158 semester hours.

If you select this program, you will be required to complete the *General Education Program* and the requirements for the *Computer Science* major. The specific engineering courses a student will take will vary according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities are regularly accepted for credit by both colleges, you are, in many cases, satisfying the requirements for two colleges by taking a particular course. For more information, see the current *University of Iowa General Catalog*.

Minors in Other Departments

You may choose to gain a minor in some department. One practical reason for doing this is that prospective employers sometimes find it easier to evaluate credentials if the University has designated a minor, possibly saving the prospective employer the effort of evaluating a transcript on a course-by-course basis.

Most but not all of the degree-granting departments in the College of Liberal Arts offer minors, and even some programs in the College that do not offer undergraduate degrees offer minors. For further information, contact the Liberal Arts Office of Academic Programs.

If a minor in Mathematics or Statistics and Actuarial Science is desired, please be aware of the College of Liberal Arts requirement that a minimum of 56 s.h. of course work must be taken outside the Division of Mathematical Sciences (which includes Computer Science, Mathematics, and Statistics and Actuarial Science).

Minor in Mathematics

A minimum of 15 semester hours must be earned in mathematics courses, at least 12 of which must be taken at the University of Iowa as advanced courses offered by the Department of Mathematics. Neither transfer credit nor credit by examination is accepted toward the 12 s.h. of advanced work. Advanced courses are defined as 22M:027, 22M:028, and all courses numbered 22M:050 or higher, except for 22M:081, 22M:104, 22M:105, 22M:109, and 22M:195. A GPA of at least 2.00 is required and no course counted toward the minor may be taken pass/non-pass.

Minor in Statistics

Students can earn a minor in statistics by taking 15 semester hours in statistics courses, 12 of which must be in courses taken at the University of Iowa numbered 22S:120 and above. The grade point average in departmental courses must be at least 2.00.

There is no minor in Actuarial Science.

Minor in Education

It is possible to earn a minor in education (see the portion of the *General Catalog* dealing with the College of Education). Such a minor will not lead to teaching certification.

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Minor in Business Administration

Students majoring in another college of the University may minor in Business Administration. All courses listed below are required for the minor.

At least 15 semester hours of all courses taken for the minor must be completed at the University of Iowa. A grade-point average of at least 2.0 is required on all courses taken for the minor and on all of the courses taken at Iowa.

Calculus-22M:016,22M: 017, 22M:025 or 22M:035	3-4 s.h.
Statistics-7P:143, 22S:008, 22S:039, 22S:102, 22S:120, or 31:142	3-4 s.h.
Introduction to Financial Accounting-6A:001	3 s.h.
Introduction to Managerial Accounting-6A:002	3 s.h.
Principles of Microeconomics-6E:001	4 s.h.
Principles of Macroeconomics-6E:002	4 s.h.
Introduction to Law-6J:047	3 s.h.
Introduction to Management-6J:048	3 s.h.
Computer Analysis-6K:070*	3 s.h.
Introduction to Marketing-6M:100**	3 s.h.
Introductory Financial Management-6F:100**	3 s.h.

* Computer Analysis requirement: students who plan to graduate with a Computer Science major should consult with an advisor in the Undergraduate Programs Office of the Tippie College of Business, W160 PBB, for alternate ways to satisfy this requirement.

**Must be taken in junior or senior year

RECOMMENDED ELECTIVES FOR COMPUTER SCIENCE MAJORS

It is the creative talent of the programmer, engineer or user that makes computers indispensable in today's society!

The required Computer Science courses provide only a core of essential material. With forethought and planning, you can round out this core with a program of electives that gives additional coverage appropriate to your personal goals. Depending on your goals, this may involve a minor in some applications area, it may involve advanced technical electives, or it may involve a mix of coursework.

An elective program that might impress one employer might not impress another, and elective programs that might impress some employers might not impress a graduate school admissions committee. Therefore, you should think about your goals carefully when you select your electives. Consult your advisor! Look at professional journals in the library! To get you started, we have listed some alternatives below:

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Although computer specialists sometimes work independently, they often work in teams on large projects. They must be able to communicate effectively with programmers and managers, as well as with users or other staff who may have no technical computer background.

Courses here at The University of Iowa that may teach you both written and verbal skills are:

- ◆ 36C:030 Communicating in Public
- ◆ 36C:039 Business and Professional Communication

(Please note: In order to register for courses numbered below 200 in the Department of Communication Studies, a student must have a cumulative grade point average of at least 2.50.

and/or

- ◆ 08N:015 Writing for Practical Purposes
- ◆ 08N:113 Writing for Business and Industry
- ◆ 08N:133 Advanced Writing for Business

(Please note: These courses, offered by the Department of English, give intensive attention not only to composition and exposition, but also to formal and thematic problems, both in the meditative essay and in extended works of nonfiction.)

Engineering and Hardware

If your bent is toward the hardware end of the field, there are a number of opportunities in the Engineering College. Following this path, you should plan for sequences of engineering prerequisites. For some of these courses, the material covered in Electronics (29:128) in the Physics Department, plus Computer Science courses is sufficient, but this requires that the student take Introductory Physics I and II (29:17 and 29:18) at the same time that the student is taking Calculus I and II. Students contemplating taking Electrical and Computer Engineering electives should therefore consider taking Computer Science, Calculus and Physics I and II concurrently, preferably in their freshmen year. These physics courses also completely satisfy the Liberal Arts and BS Computer Science natural science requirements.

Electrical and Computer Engineering:

- ◆ 055:035 Computer Architecture and Organization, prerequisite: 55:32 Introduction to Digital Design, and 55:33 Introduction to Software Design
- ◆ 055:144 Digital Integrated Electronics, prerequisite: 55:41 Electronic Circuits
- ◆ 055:146 Digital Signal Processing, prerequisite: 55:42 Signals and Systems
- ◆ 055:148 Digital Image Processing, prerequisite: 55:42 Signals and Systems
- ◆ 055:164 Computer-Based Control Systems, prerequisite: 55:60 Control Systems
- ◆ 055:165 Introduction to Robotics, prerequisite 55:60 Control Systems, or consent of the instructor

Mechanical Engineering

- ◆ 58:110 Computer-Aided Engineering, prerequisite: 57:19 Mechanics of Deformable Bodies and 58:52 Mechanical Systems ,or equivalent
- ◆ 58:134 Computer-Based Control Systems, prerequisite: 55:60 Control Systems
- ◆ 58:152 Vehicle Dynamics and Simulation, prerequisite: 57:10 Dynamics and 57:12 Linear Systems Analysis

Industrial Engineering

- ◆ 056:178 Digital Systems Simulation: This course would first require a sequence of taking 22S:39 Probability and Statistics for the Engineering and Physical Sciences (which would also satisfy the BS statistics requirement), 22M:040 Matrix Algebra for Engineers, 57:21 Principles of Design I (22M:27 Introduction to Linear Algebra may be a substitute for this), 57:22 Principles of Design II
- ◆ 056:181 Internet Systems Design: This course would first require 22M:35 Engineering Calculus I, 57:006 Engineering II, and 57:17 Computers in Engineering, or consent of instructor.

Management Sciences

Data processing services, the explosive growth in electronic commerce, doing business on the World Wide Web, and the continuing need to build and maintain databases that store critical information on customers, inventory, and projects are fueling demand for programmers with in-depth knowledge in these areas.

- ◆ 06K:180 Applied Information Systems
- ◆ 06K:220 Introduction to Information Systems
- ◆ 06K:182 Applications of Database Management Systems, prerequisite 6K:70 Computer Analysis
- ◆ 06K:230 Database Systems, prerequisite 6K:220 Intro to Information Systems and 22C:016 Computer Science I
- ◆ 06K:235 Electronic Commerce, prerequisite 6K:230 Database Systems

Accelerated MBA Professional Track

The Business College also offers an Accelerated MBA Professional Track, in which highly qualified undergraduate students in the Colleges of Liberal Arts or Engineering at The University of Iowa may be admitted to the Accelerated Professional Track (APT) program. These students begin taking the MBA core course as electives in their undergraduate program so they can earn both the bachelor's and MBA degrees in less time than would usually be required. APT students must complete a cooperative education experience while in the program.

Interested students must have completed 60 semester hours of undergraduate study, earned a grade point average of at least 3.50, clearly defined their own career goals, and indicated the intent to pursue both degree programs on a full-time basis. Students also must have a professional background similar to that of students enrolled in the MBA Program.

Graphic Arts

Students contemplating potential careers in the growing market involving web page design or web administration should be aware that many of these jobs have very ill-defined technical requirements but rest heavily on artistic, multimedia and writing skills. To balance your technical knowledge with the artistic elements, you may consider the following courses:

- ◆ 01B:001 Elements of Art (also fulfills Fine Arts GEP) and 01A:004 Basic Design are prerequisites for all non majors.
- ◆ 01D:028 Graphic Design I, prerequisite 01A:004 Basic Design
- ◆ 01D:128 Computer Graphic Design, prerequisite 01A:004 or consent of the instructor
- ◆ 01D:133 Graphic Design II, prerequisite 01D:028

Library Science

For those who have a bent to work in a library setting, the options are also varied. Academic or public schools, hospitals and religious organizations, and governments at all levels hire library technicians. The School of Library Sciences here at the University of Iowa has the following courses to prepare for this line of work (note these are graduate level courses, but can be taken by undergraduates).

- ◆ 021:120 Design of Automated Systems
- ◆ 021:142 Web Search Engines
- ◆ 021:228 Hypertext Systems, prerequisite 021:120 Design of Automated Systems
- ◆ 021:230 Text Retrieval, prerequisite 021:120 Design of Automated Systems
- ◆ 021:232 Telecommunications, prerequisite 06K:220 Introduction to Information Systems
- ◆ 021:234 Global Information Systems

HONORS IN COMPUTER SCIENCE

Membership in the Honors Program is open to any enrolled undergraduate students who maintain a cumulative GPA of 3.2 or higher. In general, the Honors Program is designed to support and encourage outstanding students in their pursuit of excellence in education. Special classes and extracurricular activities increase contact among students and provide the chance for vital, illuminating interchange between students and faculty. Participation in the Honors Program allows students to receive honors credit for individual courses and to graduate with honors from the University. Students in the Honors Program may use the facilities of Shambaugh House Honors Center, which include a study, reference library, computer terminals, and a common room. Access to departmental research facilities may also be granted if they are needed for a particular honors project.

Computer Science students who want to earn the baccalaureate degree with honors must complete the following to obtain a honors designation:

Find a Computer Science faculty member willing to serve as your Honors Project Supervisor, and reach an agreement with him/her about the basic nature of the project, preferably prior to the final year of study.

1. Complete a project approval form (obtained from the Honors Program at Shambaugh House) no later than the end of the third week of the final semester of study.
2. Complete a "Department of Computer Science Honors Project Intent Form" found in Appendix III, and give it to the Department Secretary by the end of the fourth week of the final semester of study.
3. Complete four to six semester hours of 22C:099, Honors in Computer Science, under your Project Supervisor's instructor number. This is usually spread out over two semesters.
4. Earn a major GPA of 3.2
5. Write an acceptable honors thesis - give one copy to your Project Supervisor, a copy to the Honors Center, and one copy to the Computer Science Department Secretary. Your supervisor must approve your honor's thesis.

Honors projects can be done in two semesters, or if you wish, in three semesters: perhaps one hour of credit the first semester, three hours the second semester, and two hours in the final semester. Such an extended project might involve a semester spent planning, a semester spent writing code, and a final semester spent writing the thesis itself. You should begin research with a faculty sponsor sometime during your junior year, but because specific courses may be needed to prepare for some projects, you might choose to start your search even earlier.

To enroll in 22C:099 and do an honors project, you must have a Computer Science faculty member serve as your Honors Project Supervisor. You are responsible for approaching faculty members. You don't have to limit yourself to instructors that you've had in class. Your primary consideration should be matching your research interest with your supervisor's. Included in the front of this handbook page 5-7, is a list of faculty members and their areas of expertise. Or approach a professor that you know to ask for advice. Or look through the honors thesis collection in the Shambaugh House library. Once a faculty member has agreed to supervise a project, a plan or timetable for the work and the nature of the thesis must be agreed upon.

In Computer Science, an honors project may involve a large programming project. In a programming project, however, the program itself is only part of the project. The primary component, from the point of view of the Honors Program, is the thesis, a written report describing the project. But the project does not have to include creation of a program. Instead, a thesis might discuss the background of a project, move to an outline of the design alternatives faced and the decisions made, then include a discussion of the large scale structure of the project, and end with an evaluation of the result.

There are no specific rules about the length of the thesis, but it should contain enough information that someone unfamiliar with the project, but familiar with the general area, can understand what has been accomplished and how it was done. The Honors Program requires that an unbound copy of the thesis be provided to the Honors Center and have a specified format for the title page. The Computer Science Department also requires a copy. Examples of previous theses are available in Shambaugh House. Our honors contact, Professor Doug Jones, may be contacted for more information.

SCHOLARSHIPS

The Computer Science Department encourages and recognizes achievements by undergraduate students through a number of scholarships and awards, based on scholastic performance. Financial need is not a requirement.

Scholarships available for the 2000-2001 academic year are as follows:

Sprint Scholarship: one award for \$1,000. Students must have a minimum GPA of 3.0 or above, and have demonstrated leadership skills through participation in campus activities or with the community.

Gerard P. Weeg Scholarship: two awards of \$1500 are available, for undergraduate or graduate students.

Collins Education Fund: awards are typically for \$1,000 each and are available to graduate or undergraduate students. Awarded on the basis of scholarship, leadership and personal integrity. Preference will be given to Iowa residents and students of diversity.

Cerner Scholarship: one award of \$750 to students with the following qualifications:

- ✓ Grade point average of 3.0 or above
- ✓ Junior/senior standing
- ✓ Member of the UI's ACM or IEEE CS organization
- ✓ Have relevant part-time work or internship experience in the field of computer technology

To be eligible for a scholarship, a student must be a declared Computer Science major at The University of Iowa. Previous scholarship recipients are eligible to apply.

The scholarship application process begins in the spring semester (usually around March) for awards to be applied the following academic year. Announcements are sent out electronically and flyers are posted on departmental bulletin boards.

INTERNSHIPS AND COOPERATIVE EDUCATION PROGRAM

The Department cooperates with Career Development Services (CDS) and various employers across the country in sponsoring students for full- or part-time internships. Students participating in this program generally work for an employer for one or more semesters. Students may also work part time locally while attending classes. Students are usually paid as part of their employment assignment, and they register under the course number 22C:000 (0 semester hours) to maintain full-time student status. The department must approve participating students.

Campus-wide, over 1,300 students from 61 different academic units are placed through the Career Development Services with over 600 different employers. The nature of employers is quite diverse, including members of all employment sectors - private, public, profit, and non-profit organizations. In each case, employers file an evaluation of your work upon completion of the work assignment.

If you are interested in additional information about internship opportunities, you should contact the Career Development Services Office in 315 Calvin Hall. They provide advice about preparation of resumes and letters of application, interested companies, etc. The Computer Science department's liaison with the Career Development Services program is Professor Doug Jones.

In general, to enroll in this program, you must have finished a minimum of 24 semester hours of undergraduate work at the University and must have finished the four core courses: 22C:016, 22C:020, 22C:030, and 22M:025 (or the equivalent). Sometimes conditional approval may be given for an excellent student to seek a job while still in 22C:030 Computer Science III), but a student may not accept a position before completing the four courses listed above. A minimum GPA of 2.50 is required of Cooperative Education students.

The internship procedure is as follows:

1. Obtain Form 1 from the Career Development Services in 315 Calvin Hall. Read, complete, sign, and turn in there.
2. Schedule an appointment for an "Orientation Session" in CDS.

3. Complete Data Questionnaire and submit resume at <http://www.uiowa.edu/~careers/>.
4. Your approval will be checked electronically by CDS. Meet with a CDS advisor as often as desired during your search.
5. When you have accepted an internship. Return to CDS and complete Form 2 (Experiential Learning Agreement).
6. Obtain a special permission number and register on ISIS.

The application procedure is essentially the same for students who have not yet completed the Foundation Courses, but it can only result in conditional approval to seek a job. As noted earlier, a student can't accept a job until they've completed all four Foundation courses, and most students who are in the internship program have completed more coursework than that.

DEPARTMENTAL RESOURCES

Unix Computer Laboratory

The Unix Computer Laboratory is located in 301 of MacLean Hall. Over 30 HP Unix workstations are available for student use. Students must apply for a Unix account and have proper ID authorization to use this room.

Virtual Environments Lab

Research in virtual environments is carried out in a separate laboratory (Room 311 MLH), funded through grants from the National Science Foundation and the Ford Motor Company. This lab contains a bicycle-riding simulator that is used to conduct experiments testing human behavior in simulated environments.

The visual display system consists of three 8'-x-10' rear-projected screens arranged at right angles, providing a field of view of more than 180 degrees. Lab equipment includes an 8-processor Onyx Infinite Reality graphics supercomputer and several high-end PC and Unix workstations.

For more information about this laboratory, please contact Professors Jim Cremer or Joe Kearney.

Research projects in this laboratory currently include:

- behavior modeling for autonomous vehicles and pedestrians
- methods to create replicable scenarios through on-line coordination of behaviors
- traffic generation techniques
- scenario authoring tools
- on- and off-road terrain modeling
- real-time simulation environments
- modeling of urban and historical environments

Networking Lab

A local network of Linux workstations where students may develop and experiment with network protocols, alternative operating system structures and other exercises that could be unsafe on machines connected to the Internet. For more information about this laboratory, please contact Professor Ted Herman.

Computer Science Research Laboratory

The Computer Science Research Laboratory (CSRL), located in Room 303 of MacLean Hall, is a state-of-the-art learning environment for Computer Science undergraduates, which includes 24 HP 9000 workstations. In the CSRL, students can get hands-on experience with UNIX operating systems, TCP/IP networking, compilers and programming environments, object-oriented languages, and graphics and database programming.

Undergraduates in the Department of Computer Science should automatically receive a CSRL account upon enrolling in the program. Department faculty can also request accounts for students enrolled in courses they teach.

Mathematical Sciences Library

The Computer Science Department also has easy access to the Mathematical Sciences Library, located on the first floor of MacLean Hall. Services there include traditional library services, as well as the following on-line resources:

- InfoHawk (provides access to The University of Iowa Libraries' bibliographic catalog and periodical indexes)
- Gateway to the Internet (connects to a wide range of information sources and search tools available on the Internet)
- ACM Digital Library (accesses electronic publications of the Association for Computing Machinery)
- MathSci (searches the Actuarial Science, Computer Science, Mathematics & Statistics literature)
- Britannica Online (the Encyclopaedia Britannica online)
- UIowa Libraries Web (information on a variety of libraries services)

STUDENT ACTIVITIES/GROUPS

Student Chapter of the Association for Computing Machinery (ACM)

The University of Iowa Student Chapter of ACM, founded in 1966, provides services for both students and faculty. The main aim of the organization is to provide a basis for students and faculty to interact. The organization also acts as a clearinghouse for information, facilitates social activities, and provides access to national ACM activities.

The ACM Student Chapter sponsors several speaker series throughout the year. The National Speaker series, sponsored by ACM, often brings a renowned Computer Scientist to Iowa City each year.

Programming contests provide students an opportunity to interact competitively with students from other schools. The ACM Student Chapter participates as a host site for the Big Ten Programming Contest, annually held in the spring. Invitations to participate are sent out to hundreds of high schools in the state. This contest was initiated by the ACM Student Chapter, and is gaining strong support from industry.

Undergraduate Handbook 2000-01

The ACM Student Chapter is a clearinghouse for information relevant to students. In particular, information regarding jobs and scholarships available locally and nationally is maintained and updated regularly.

The ACM Student Chapter holds many activities to allow faculty and students to interact socially. Outdoor picnics and indoor parties are held throughout the year, including an annual Computer Toss. Each outdoor picnic also features a highly competitive, ongoing, faculty vs. students volleyball match.

The office of the ACM Student Chapter is located in 201A MacLean Hall. All students are encouraged to join and participate as members or as officers of the organization. The web address is <http://acm.cs.uiowa.edu/>.

Women in Computer Science (WICS)

WICS is an organization to help minorities and women feel better about themselves and to help women pursue careers in Computer Science. Some of the activities that WICS has sponsored in the past have involved planning field trips to companies, help with organizing the Homecoming Parade, fund-raising efforts by designing and selling T-shirts, and hosting dinners with Computer Science faculty, staff, and students. WICS has a standing invitation for students to bring their computer projects and course difficulties to meetings where other students are always willing to help. Information on the organization can be found at <http://www.cs.uiowa.edu/Events/wics/index.html>.

Women in Science and Engineering (WISE)

The WISE Program cooperates with science, mathematics, engineering, and technology (SMET) programs at The University of Iowa to increase the participation and advancement of women as students, faculty, and professional staff. The program exists to integrate the ideas, strengths, and approaches of women into research, teaching, and service, and to promote a supportive environment for women to study and work, and to inform the public of educational and career opportunities for women in scientific and technical fields. Opportunities to get involved in WISE include participating in the undergraduate peer mentoring program or becoming a member of the WISE Ambassadors, a recognized student group that actively provides outreach to local schools and community groups. Volunteers are also needed to help with Web-page updates, mailings, and special projects. If interested in learning more about WISE, please contact them via e-mail at "wise@uiowa.edu" or by phone at (319) 335-3530.

IEEE

The Institute of Electrical and Electronics Engineers, Inc. (IEEE or "eye-triple-E"), helps advance global prosperity by promoting the engineering process of creating, developing, integrating, sharing, and applying knowledge about electrical and information technologies and sciences for the benefit of humanity and the profession. The IEEE is a non-profit, technical professional association of more than 350,000 individual members in 150 countries. Through its members, the IEEE is a leading authority in technical areas ranging from computer engineering, biomedical technology and telecommunications, to electric power, aerospace and consumer electronics, among others.

IEEE student membership is open to undergraduate and graduate students who are enrolled in at least 50% of a normal, full-time course of study in electrical engineering, electronics, computer engineering, or computer science, in an allied branch of engineering technology, or in related arts and sciences. Membership information can be at <http://www.ieee.org/membership>.

GRADUATION

Official transcripts may be obtained at the Office of the Registrar in 1 Jessup Hall (335-0229).

To graduate, you must file an Application for Degree form with the Office of the Registrar before the deadline during the session in which the degree is to be conferred (see *Schedule of Courses* "Significant Deadlines" page. If the application does not get filed by the date indicated, you must refile for the next session. Deadline dates are published in the *Schedule of Courses*, posted on bulletin boards in MacLean Hall (and most other buildings on campus), and printed in *The Daily Iowan*. You must be registered for the semester in which you intend to graduate.

FINDING A JOB

Certainly one way to enrich your education, and also enrich your pocketbook, is to find a job. Job prospects are excellent in the computing profession if you have a good academic record, a substantial elective program, good letters of recommendation, and a carefully considered career plan.

The Business and Liberal Arts Placement Office in 24 Phillips Hall and the Career Development Services in 315 Calvin Hall provide a number of services which should help you find the perfect job.

Talk to Career Development Services early, since they can help explore different kinds of careers in general terms. Services include: individual career advising, the Career Development Services Library, and a computerized career decision-making system. The Career Development Services is a "user friendly" information center containing up-to-date books and files on over 150 different career areas.

The Business and Liberal Arts Placement Office (BLAPO) is prepared to help seniors with their job search and should be contacted early in your senior year. This service provides individual advising, seminars on job search techniques (resume writing, interviewing, and job hunting), and a resume critiquing service. For a small fee, the service includes a subscription to the JobTrak (a web-based job network), a resume database (Crimson), and on-campus interviews with large and small companies. Last year, the Placement Office set up job interviews with representatives from IBM, Hewlett-Packard, John Deere, State Farm, Caterpillar, and numerous other firms, both in- and out-of-state. An Employer Literature Room is maintained to help students research company information and locate prospective employers who do not send recruiters for on-campus interviews. You may directly contact such companies. Personal initiative can make the difference between a mediocre job and one that's just right.

To get a feel for the employment market, you might also look at help wanted ads in trade and professional journals such as *Datamation*, *Communications of the Association for Computing Machinery*, *Computerworld*, and newspapers. The University Main Library stocks newspapers from across the country.

Summer jobs as internships are handled through the Internship/Cooperative Education program discussed above, not through the Placement Office.

GRADUATE SCHOOL

Is graduate study appropriate? Computer systems and advanced application areas continue to become more complex, and successful careers in some areas require extensive background. We advise graduate work as preparation for careers in areas such as systems programming, computer design and architecture, simulation, and large-scale management information systems. For now, an MS degree is often sufficient, but we may see more PhDs in these areas in the near future. We urge students to explore their interests and goals carefully before their senior year to determine whether they need graduate education. Some large companies allow their new employees to pursue advanced degrees on a part-time basis.

Graduate programs in Computer Science at institutions such as The University of Iowa receive very large numbers of applications, so admissions standards are quite high. If you are interested in applying to such a program, you should have a solid elective program which provides a depth of experience in areas which directly support Computer Science, typically including more than the required course work in Computer Science and mathematics. In addition, your GPA in the more advanced courses (e.g., 22C:034, 22C:050, 22C:054) should be 3.5 or higher, and your GPA in all undergraduate courses should be at least 3.0. The quality of letters of recommendation can also be quite important, and those asked to write them should be chosen with care. A good score on the Graduate Record Exam (GRE) may help to compensate for a weaker academic record.

Graduate work in Computer Science can lead to a number of challenging careers in both industry and the academic world. In particular, the PhD in Computer Science is no longer a degree which is principally directed toward teaching and research positions at academic institutions.

An undergraduate degree program in Computer Science can also provide preparation for graduate work in related areas, such as Business Administration, Management Information Systems, Electrical and Computer Engineering, and Operations Research. Success as a graduate student may depend on your undergraduate electives, so choose them carefully.

APPENDIX I
DEPARTMENT OF COMPUTER SCIENCE
PETITION FOR EXCEPTION TO DEPARTMENTAL REQUIREMENT

Students wishing an exception to one of the departmental requirements should complete this form (please type or print legibly, and use additional paper if necessary), obtain their advisor's signature on it, and give it to the CS Department Secretary in 14 MacLean Hall.

Name: _____ Date _____

ID number _____ Current phone _____

Current address _____

Exception(s) requested:

Reason and justification:

Comments and/or recommendations of advisor (optional):

Signature of advisor (required to indicate advisor has seen petition, though may not necessarily approve of it): _____ Date: _____

Name of advisor, printed or typed: _____

Committee action: approved rejected committee has no jurisdiction

Signature of committee chairperson: _____ Date: _____

If petition is rejected, the reason will be on the back of this form.

cc: advisor, undergraduate petition file, student file.

APPENDIX II
DEPARTMENT OF COMPUTER SCIENCE
HONORS PROJECT INTENT FORM

Date: _____

Name: _____

Email: _____

Phone: _____

Student ID Number: _____

Title of Honors Project (can be preliminary): _____

Faculty sponsor: _____

Intended graduation date: _____

OFFICE USE ONLY

GPA 3.2 or higher

4-6 s.h. of 22c:099 completed

Copy of thesis received/attached

Date Registrar notified of honors status _____

Comments:

APPENDIX III
DEPARTMENT OF COMPUTER SCIENCE
BA/BS DEGREE CHANGE FORM

Date: _____

Name: _____

ID Number: _____

Email Address: _____

I would like to change: (mark one)

BA to BS

BS to BA

OFFICE USE ONLY

For BS changes only

Student must have earned at least a 2.46 G.P.A. in the following four foundation courses and must have an overall G.P.A. of 2.0.

Course	Grade.	s.h.
22C:016 Computer Science I		4.0
22C:020 Computer Science II		4.0
22C:030 Computer Science III		3.0
22M:021 Calculus and Modeling I OR 22M:025 Calculus I OR 22M:035 Engineering Calculus I OR 22M:045 Accelerated Calculus with Applications I		4.0
TOTAL		15.0

Overall GPA _____

____ Approved

____ Not approved

____ SRIS Updated

____ Database Updated

____ Student Notified

srisdi - for transcript

srisdp - to change degree

APPENDIX IV

A BRIEF DIRECTORY OF RESOURCES

Academic Advising Center	1100 Quadrangle	353-5700
Admissions	108 Calvin Hall	335-3847
Business and Liberal Arts Placement Office	24 Phillips Hall	335-1023
Career Development Services	315 Calvin Hall	335-1385
Correspondence Study	116 International Center	335-2575
Counseling Service*	S330 Westlawn	335-7294
Evaluation and Examination Service	300 Jefferson Building	335-0356
Honors Program	Shambaugh House	335-1681
Information Technology Systems	15 Lindquist Center	335-5525
IMU Bookstore	63 Iowa Memorial Union	335-3179
Liberal Arts Office of Academic Programs	120 Schaeffer Hall	335-2633
Mathematical Sciences Library	125 MacLean Hall	335-3076
Personal Computing Support Center	Lindquist Center	335-5454
Registrar's Office:		
Graduation analysis	1 Jessup Hall	335-0228
Registration Center	30 Calvin Hall	335-0244
Transcripts	1 Jessup Hall	335-0230
Saturday and Evening Class Program	116 International Center	335-2575
Student Financial Aid	208 Calvin Hall	335-1450
Visitors Center (Admissions),	230 N Clinton	335-1566

Counseling Service: The primary goal of counseling is to help students get maximum benefits from their university careers. The University Counseling Service (UCS) is committed to the idea that the college years should be satisfying, productive, and rewarding. Counseling services are designed to help students grow in self-understanding so that they may use their assets effectively and plan attainable goals for the future.

UCS also offers programs to help students with their career and major choices, to aid students in improving their interpersonal skills, to assist students in improving their academic skills (time management, study techniques, and exam taking), and to reduce anxiety during exams.

All counseling and testing services are confidential and most services are free to University students. UCS is staffed by professionally trained counselors and psychologists. Counseling is on a voluntary basis, and appointments can be made in person or by telephone.

Tutor Referral Service: The Department of Computer Science maintains a tutor referral list. To get the names of individuals willing to tutor for a given course, check the department's website at www.cs.uiowa.edu under Helpful Resources. Normally students are expected to have received a grade of at least a B+ in a course for which they may tutor, and should have completed at least one follow-up course. If you are interested in being a tutor, application forms can be found on the department's website under Employment Opportunities. Some course web pages also include a list of tutors. All services and payments are individually arranged. The Department does no certification of tutors other than to certify they satisfy the criteria noted above.

APPENDIX V

FREQUENTLY ASKED QUESTIONS

FACULTY INFORMATION AND ADVISING

Question: How do I obtain a Computer Science advisor?

Answer: All Computer Science majors are advised by the Academic Advising Center in 1110 Quadrangle until they have completed 22C:020 with grades of D- or higher, or until they have earned 90 semester hours. When that criterion has been satisfied, the student's file is sent to the Computer Science Department at which time the student has a departmental faculty member assigned to them as an advisor. For information on who your advisor is, please check your Degree Evaluation, the Computer Science web site (<http://www.cs.uiowa.edu>), or contact the Department Secretary in 14 MacLean Hall.

Question: Where would I seek counseling for personal, academic or other reasons?

Answer: The Computer Science Department, 14 MacLean Hall (335-0713), Academic Programs Office, 120 SH (335-2633), Academic Advising Center, 1110 Quadrangle (353-5700), or Counseling Service, Westlawn (335-7294).

Question: Where can I find information regarding locations of offices, phone numbers or mailboxes of Computer Science faculty and teaching staff?

Answer: All mailboxes are located in Room 15 MLH.

Room numbers for offices are posted on the wall directories in both the north and south entrances to MacLean Hall, on the departmental web site (<http://www.cs.uiowa.edu>), or on individual web pages.

Information regarding office and phone numbers is posed on the web at (<http://www.cs.uiowa.edu>), on individual web pages, or copies of the most current CS directory can be picked up in 14 MacLean Hall.

FORMS AND PAPERWORK

Question: Where can I get a drop/add slip?

Answer: The Department of Computer Science, 14 MLH; the Registration Center, 30 CALH, or the Liberal Arts Academic Programs Office, 120 SH.

Question: Where can I find a pass/non-pass form?

Answer: Forms may be found in the Liberal Arts Academic Programs Office, 120 SH.

Question: How do I file a pass/non-pass option?

Answer: You must get signatures from the instructor of the course and your advisor, then take the form to the Registration Center, 30 CALH, before the end of the third week of class (1-1/2 weeks during summer session).

Question: Where do I file a second-grade-only option?

Answer: In the Liberal Arts Academic Programs Office, 120 Schaeffer Hall. These must be filed before the published deadlines.

- Question: Where can I get a petition form for an exception to a Computer Science major requirement?
- Answer: In the Computer Science Department Office, 14 MLH.
- Question: Where can I get an application form for evaluation of transfer course work for the Computer Science major?
- Answer: From the Office of Admissions in 108 Calvin Hall.
- Question: Where can I change my degree objective from BA to BS or vice versa?
- Answer: With the Computer Science Departmental Secretary in 14 MLH.
- Question: How do I get a degree evaluation?
- Answer: Graduation Analysis, Registrar's Office, 1 Jessup Hall (335-0228) will send copies of your degree evaluation to both you and your advisor every semester, near mid-semester.
- Question: Where can I get an official copy of my University of Iowa transcript?
- Answer: The Transcripts window, Registrar's Office, 1 Jessup Hall (335-0229).
- Question: Where do I get my registration form to sign up for classes?
- Answer: Your advisor will have the form for use in advising you on registration options. However, if you have not been registered for a calendar year, you will need to fill out an application for re-entry at the Registration Center, 30 Calvin Hall and pick up a registration form there. You'll also need to have an advisor assigned, regardless of whether an advisor is listed on the registration form. See the Computer Science Departmental Secretary in 14 MLH, or call 335-0713.
- Question: Where can I get an application for the graduate program in Computer Science?
- Answer: Graduate Admissions, 116 Calvin Hall.

DEPARTMENTAL RESOURCES

- Question: Where can I learn more about the Student Chapter of the Association for Computing Machinery (ACM) and/or Women in Computer Science (WICS)?
- Answer: The best way is to check out those organization's websites. ACM's website address is <http://www.acm.cs.uiowa.edu/>. WICS's address is <http://www.cs.uiowa.edu/Events/wics/index.html>
- Question: How do I enroll in the Internship/Cooperative Education program?
- Answer: Cooperative Education, 315 Calvin Hall. Then see the Computer Science Co-op advisor, Professor Doug Jones, in 201H (335-0740 or jones@cs.uiowa.edu).
- Question: How do I enroll in the Honors Program?
- Answer: At Shambaugh House Honors Center, 219 N. Clinton, Iowa City, then see the Computer Science Honors advisor, Professor Doug Jones, in 201H, (335-0740 or jones@cs.uiowa.edu).
- Question: How do I get a student computing account.

Answer: You automatically get a University account when you register for classes (ISIS [main menu, functions 6]). To get a Computer Science UNIX account, you must apply. Forms may be picked up in the main office (14 MLH).

MISCELLANEOUS

Question: Where do I apply for student financial aid?

Answer: In the Office of Student Financial Aid, 208 Calvin Hall.

Question: Where do I get a student identification card?

Answer: At the Registration Center, 30 Calvin Hall.

Question: Where do I purchase computing manuals?

Answer: IMU Bookstore or Iowa Book & Supply, 8 S. Clinton St.

CAREERS

Question: Where can I get assistance in career planning?

Answer: Career Development Services, 315 CALH, and the Business and Liberal Arts Placement Office, 23 Philips Hall.

Question: Where can I set up job interviews with prospective employers?

Answer: Business and Liberal Arts Placement Office, 23 PH.

CATALOGS, TEXTS, AND REFERENCES

Question: Where can I get a copy of the *Computer Science Undergraduate Handbook*?

Answer: From the Computer Science main office (14 MacLean Hall), or Academic Advising Center in 1110 Quadrangle, or on the departmental web site at <http://www.cs.uiowa.edu/>.

Question: Where can I purchase textbooks required for Computer Science courses?

Answer: At either the IMU Bookstore in the Iowa Memorial Union, or at Iowa Book & Supply, 8 S. Clinton St.

Question: What is the University of Iowa *General Catalog* and where can I get a copy of it?

Answer: The *General Catalog* is a compilation of information about the University's educational programs, curricula, regulations, policies, fees, and services. It is printed every two years. Copies may be purchased at the IMU Bookstore at the Iowa Memorial Union for \$6.00, or you may find the *Catalog* on line at <http://www.uiowa.edu/registrar/catalog/>

Question: How can I get a copy of the *Catalog* reprint for the Division of Mathematical Sciences?

Answer: In the Office of Admissions, 108 Calvin Hall, or in the Computer Science office, 14 MLH.

Question: Where is the Math Library?

Answer: The Mathematical Sciences Library, is on the first floor of MacLean Hall, Room 125.

COURSES

Question: How can I obtain a *Schedule of Courses*?

Answer: From the Registration Center, 30 Calvin Hall.

Question: Where can I obtain up-to-date information on courses offered by the Department of Computer Science (more up-to-date than the *Schedule of Courses*)Z

Answer: The easiest place is *ISIS on the Web*, or in the departmental office (14 MLH).

Question: Where can I get information on Correspondence courses offered through the University of Iowa?

Answer: Through the Office of Correspondence Study, 116 International Center (335-2575).

Question: How can I get information on Saturday and Evening courses offered by the University of Iowa?

Answer: Through the Office of Saturday and Evening Programs, 116 International Center (335-2575).

Question: Where can I get information on courses in English as a Second Language.

Answer: From the ESL Programs Office, 38 Macbride Hall (335-5630).