APPROVED BY SENATE
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10KP0112BS: COMPUTER SCIENCE, BS

In Workflow

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Approval Path

1. Wed, 18 Nov 2020 21:21:13 GMT
   Deb Forgacs (dforgacs): Approved for U Program Review
2. Tue, 24 Nov 2020 17:15:39 GMT
   Elsa Gunter (egunter): Approved for 1434 Head
3. Tue, 24 Nov 2020 17:36:41 GMT
   Brooke Newell (bsnewell): Rollback to 1434 Head for KP Committee Chair
4. Tue, 24 Nov 2020 17:52:05 GMT
   Elsa Gunter (egunter): Approved for 1434 Head
5. Tue, 02 Feb 2021 19:10:40 GMT
   Brooke Newell (bsnewell): Approved for KP Committee Chair
6. Tue, 02 Feb 2021 19:18:41 GMT
   Candy Deaville (candyd): Approved for KP Dean
7. Tue, 02 Feb 2021 19:58:39 GMT
   John Wilkin (jpwilkin): Approved for University Librarian
8. Wed, 03 Mar 2021 23:14:33 GMT
   Kathy Martensen (kmartens): Approved for Provost
9. Wed, 17 Mar 2021 14:51:47 GMT
   Barbara Lehman (bjlehman): Rollback to KP Committee Chair for Senate EPC
10. Mon, 29 Mar 2021 14:22:02 GMT
    Brooke Newell (bsnewell): Approved for KP Committee Chair
11. Mon, 29 Mar 2021 14:32:18 GMT
    Candy Deaville (candyd): Rollback to KP Committee Chair for KP Dean
12. Mon, 29 Mar 2021 14:35:51 GMT
    Brooke Newell (bsnewell): Approved for KP Committee Chair
13. Mon, 29 Mar 2021 14:36:56 GMT
    Candy Deaville (candyd): Approved for KP Dean
14. Mon, 29 Mar 2021 14:39:25 GMT
    John Wilkin (jpwilkin): Approved for University Librarian
15. Mon, 29 Mar 2021 14:45:19 GMT
    Kathy Martensen (kmartens): Approved for Provost

History

1. Dec 13, 2018 by Deb Forgacs (dforgacs)
2. Apr 11, 2019 by Deb Forgacs (dforgacs)
3. May 2, 2019 by Deb Forgacs (dforgacs)
4. Aug 9, 2019 by Deb Forgacs (dforgacs)
5. Aug 12, 2019 by Deb Forgacs (dforgacs)

6. Feb 26, 2020 by Brooke Newell (bsnewell)
7. Mar 31, 2020 by Deb Forgacs (dforgacs)

Date Submitted:Wed, 18 Nov 2020 14:16:41 GMT

Viewing:10KP0112BS : Computer Science, BS

Changes proposed by: Steve Herzog

Proposal Type

Proposal Type:

Major (ex. Special Education)

This proposal is for a:

Revision

Proposal Title:

If this proposal is one piece of a multi-element change please include the other impacted programs here.*example: A BS revision with multiple concentration revisions*

Revision of the BS in Computer Science (Grainger College of Engineering) program, centered on a modification of the introductory course sequence.

EP Control Number

EP.21.075

Official Program Name

Computer Science, BS

Effective Catalog Term

Fall 2021

Sponsor College

Grainger College of Engineering

Sponsor Department

Computer Science

Sponsor Name

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Program Description and Justification

Justification for proposal change:

1) Revising the Computer Science Introductory Sequence, replacing CS 125 Intro to Computer Science (4 hours) and CS 126 (3 hours), with three new courses, CS 124 Intro to Computer Science I (3 hours), CS 128 Intro to Computer Science II (3 hours) and a one-hour code-review course, CS 222 Software Design Lab, and eliminating CS 242 Programming Studio. CS 128 takes about # of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124.

Justification: Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Adding MATH 257 and MATH 416 as options for linear algebra, in addition to the option of MATH 415.

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Meanwhile, we have approved individual students wishing to take the more theoretical MATH 416 Abstract Algebra instead of MATH 415 for many years and now simply wish to codify that option.

3) Adding the proposed CS 211 Ethical and Professional Conduct
Justification: The addition of CS 211 Ethical and Professional Conduct (proposed) as an option in place of CS 210 allows students the option of a course that satisfies the advanced composition general education requirement, adds substantial professional practice components to the course, and gives students more time to examine the broad range of ethical topics in computer science

4) Replacing the list of options approved for the CS Science Elective with the Natural Science and Technology General Education list (minus the courses that the Grainger College of Engineering does not allow credit for).

Justification: Simplifies a confusing requirement and eliminates the need to monitor and renew the science elective list.

Corresponding Degree

BS Bachelor of Science

Is this program interdisciplinary?

No

Academic Level

Undergraduate

Will you admit to the concentration directly?

No

Is a concentration required for graduation?

No

CIP Code

110701 - Computer Science.

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

No

Admission Requirements

Is this revision a change to the admission status of the program?

No

Enrollment

Describe how this revision will impact enrollment and degrees awarded.

This revision should have no discernible impact on enrollment or degrees awarded.

Estimated Annual Number of Degrees Awarded

What is the matriculation term for this program?

Fall

What is the typical time to completion of this program?

4 years

What are the minimum Total Credit Hours required for this program?

128

Delivery Method

Is this program available on campus and online?

No

This program is available:

On Campus

Budget

Are there budgetary implications for this revision?

No

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

No

Resource Implications

Facilities

Will the program require new or additional facilities or significant improvements to already existing facilities?

No

Technology

Will the program need additional technology beyond what is currently available for the unit?

No

Non-Technical Resources

Will the program require additional supplies, services or equipment (non-technical)?

No

Resources

For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/ acknowledgement from faculty, students, and/or other impacted units as appropriate.

Attach File(s)

Letters of Acknowledgement for Changes to CS 125.pdf
Letters of Acknowledgement for Changes to CS 225.pdf
Letters of Agreement with the CS+X Partners_1.pdf

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

This revision constitutes a redistribution of existing instructional resources and should not have a significant impact on Computer Science Department faculty, class sizes, teaching loads, student-faculty ratios, etc., with the exception of CS 128, where we expect the class sizes to be about 600-800 students a semester, in place of 200-350 students per semester who used to take CS 126, the course CS 128 primarily replaces. If anything, this revision should make the department's use of instructional resources more efficient, eliminating the need for multiple paths for majors and non-majors, respectively, taken through the CS introductory sequence and reducing redundancies (e.g. needing both CS 126 and CS 242 to serve the same role at different levels).

Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

This revision, along with the new and revised courses involved in this revision, are almost entirely a reorganization of the same topics, and where there are new topics, these topics will rely upon common online resources. Therefore, we do not foresee any discernible impact on the University's Library resources, collections, and services.

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

Yes

Please describe

This revision will lead to the reduction and phase-out of CS 125, CS 126 and CS 242.

This revision will also impact the following programs in the following colleges:

In the Grainger College of Engineering (besides this program):
* Minor in Computer Science

In the College of ACES:
* Computer Science & Animal Science
* Computer Science & Crop Science

In the College of Fine and Applied Arts
* Computer Science & Music

In the College of Liberal Arts & Sciences:
* Mathematics & Computer Science
* Statistics & Computer Science
* Computer Science + Anthropology
* Computer Science + Astronomy
* Computer Science + Chemistry
* Computer Science + Economics
* Computer Science + Geography & Geographic Information Sciences
* Computer Science + Linguistics
* Computer Science + Philosophy

In the College of Media:
* Computer Science & Music

We have communicated with the affected colleges about these changes and will submit curriculum revisions for each program following the procedures outlined by the respective college office.

Does the program include other courses/subjects impacted by the creation/revision of this program?

No

Financial Resources

Will the unit need to seek campus or other external resources?

No

Are you seeking a change in the tuition rate or differential for this program?

No

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

The BS in Computer Science program's learning objectives are in two categories: Program Educational Objectives and Student Outcomes. Each of these are described in the following two sections.
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CS PROGRAM EDUCATIONAL OBJECTIVES REVIEW AND UPDATE PROCESS
In this section, we describe the current Program Educational Objectives for the BS in CS degree, together with the process used by the Department of Computer Science for their periodic review and update. This process is managed by the Undergraduate Studies Committee, under the direction of the Director of Undergraduate Programs.
The University of Illinois Computer Science Undergraduate Program Educational Objectives are to prepare graduates who:
1. For years after graduation are highly sought-after by employers and accepted at top graduate schools, obtain positions in industry, government, not-for-profits and academia.
2. Pursue education through lifelong learning either through self-directed study or in leading graduate programs.
3. Emerge as leaders in the field through the creation of new knowledge and systems in the rapidly changing world.
4. Provide leadership with their high ethical and technical standards.

The Program Educational Objectives (PEOs) are reviewed roughly every three years by the Undergraduate Studies Committee to decide whether revision is appropriate based on trends in the field, informal input from alumni and other program constituents, and data from student attainment of relevant job positions and entrance into graduate school.
At the beginning of each round of review and revision, input is collected from sources such as informal surveys of our program constituents, reports on employment outcomes for our recent graduates and feedback on success rates for our students applying to graduate school. Information indicating that the PEOs should be revised, or that they are not being highly attained is incorporated into the assessment of the program and the courses therein.
When a revision of the PEOs is deemed appropriate, the revised PEOs are put before the Advisory Board and their approval is solicited. The Advisory Board contains representatives from our alumni and from industry partners who are potential employers of our graduates. If the Advisory Board suggests revisions, these revisions are reviewed by the Undergraduate Studies Committees and new PEOs are generated consistent with these revisions, and then the PEOs are again put to the Advisory Board for their approval.
Once the PEO's have been approved by the Undergraduate Studies Committees and the Advisory Board, they are brought before the faculty of the Department of Computer Science for their discussion and acceptance. If the faculty recommend substantive changes to the PEOs, then the results are sent back to the Undergraduate Studies Committee and the Advisory Board for re-approval. If the recommendations are minor and non-substantive, they are made by the Director of Undergraduate Programs. The website maintained by the Department of Computer Science for publishing the PEOs is updated with the final revision.

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CS STUDENT OUTCOMES ASSESSMENT PROCESS

This section describes the expected student outcomes of the BS in CS program. It details the process for monitoring them --including how data is collected -- and for assessing when and what revisions to courses and the program seem desirable to better meet the student outcomes. The BS in CS program prepares students to achieve the following student outcomes by the completion of their degree:
Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
Communicate effectively in a variety of professional contexts.
Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
Apply computer science theory and software development fundamentals to produce computing-based solutions.

In order to track student progress in achieving the student outcomes of the BS in CS program, the Department of Computer Science has identified a set of "core courses" that ensure student outcomes are being reached. These include the following courses that all students must take:
CS 128, CS 173, CS 210, CS 225, CS 222, CS 233, CS 241, CS 357, CS 361, CS 374, and CS 421.
All students must also select at least one team project course from among these:
CS 427/8/9, CS 465, CS 467, CS 493/4, CS 497, and CS 498VR.

These courses (and others) are under continuous assessment and revision informally by instructors teaching the course. More formally though, roughly every three years (the semester prior to the ABET review cycle, and midway between cycles) assessment data and course revision information is collected for each core course, and stored by the academic office.
Each course in CS has a specific list of learning goals. Courses typically have 8 to 12 learning goals each. This list of learning goals is reviewed by the instructors of the course every one to three years. For each class, assessment instruments are identified that assess each learning goal. The assessment instruments include at least one summative assessment, but preferably also at least one formative assessment. They are typically chosen from homework assignments and exams, but for some learning goals, project write up or team presentations are more appropriate. For each assessment instrument, the minimum score required to achieve satisfactory attainment of the learning goal is recorded, along with the percentage of students in the program attaining the learning goal and statistics indicating the range of performance of the students on the learning goal. For most courses in the core, satisfactory attainment of the learning goals translates to receiving a score of 70% or more on the assessment instruments measuring that learning goal. For a few of our most difficult courses, satisfactory attainment is considered achieved with a score of 60%. The rate of attainment is considered very high if at least 85% of the students are achieving satisfactory attainment of the learning goal, and the average score of the BS in CS students in the class is at least 80%.
The rate of attainment for each learning goal is reviewed by the instructors teaching the course and the course coordinator and when found to be less than very high, the student work is reviewed more thoroughly and suggestions are recorded for ways in which improvement might be made to attain a higher rate of attainment of the learning goals. The suggested improvements typically involve either changes within a course, or changes between neighboring courses in the prerequisite chain. Typical changes within a course would include shifting emphasis, or reorganizing topics to clarify the flow of the material related to the learning goal in question. Changes to the relation between courses may involve possibly shifting topics across course boundaries to allow for more time in one course for greater emphasis for a needed prerequisite topic or bring part of the coverage of a prerequisite topic closer to the place where it is used by the topic covering the learning goal on which less than very high attainment was achieved.
Once weaknesses have been identified and suggested improvements have been recorded for a learning goal, the suggestions are reviewed by the course coordinators and regular instructors of the courses involved in the suggested revisions. Where possible within the current course structure, a plan is made for how to implement the suggested improvements. If the current course structure for the courses involved does not adequately support the suggested improvements, then the difficulty is brought to the attention of the Undergraduate Studies Committee for a discussion of course revisions. After implementation of the suggested course revisions, at the next program review period for improvement, the learning goals affected are examined in comparison to the previous performance for improvement.
In addition to reviewing the learning goals of the individual courses, the pattern of attainment of learning goals covering the major student outcomes is reviewed. If more than a third of the courses supporting a student outcome fail to achieve very high attainment of the learning goals covering the student outcomes, then the Director of Undergraduate Programs will meet with the course coordinators and regular instructors of the various courses

failing to achieve very high attainment of the learning goals covering the student outcome in question to discuss what underlying weaknesses exist contributing to this systemic failure to strongly cover the relevant student outcome. The Director of Undergraduate Programs will deliver a summary of the findings from these discussions to the Undergraduate Studies Committee. The Undergraduate Studies Committee will then review the findings of repeated weakness in learning goals covering the student outcome in question and the findings of potential underlying causes of that weaknesses. The Undergraduate Studies Committee will determine if additional courses or other revisions to the BS in CS program are likely needed to address the identified weaknesses in student outcome attainment.
In addition to revisions of the program driven by the study of course learning goals, once each three years, the Director of Undergraduate Programs will review whether the program is topically in compliance with the latest requirements from the ABET accreditation process. The Director of Undergraduate Programs will present to the Undergraduate Studies Committee any ways in which the program is potentially found to be not in compliance with the topics required to be covered by ABET. The Undergraduate Studies Committee will devise a plan, either through course revision or curriculum revision to bring the program back into topical compliance with ABET.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

BS in CS Curriculum side-by-side 2020-11-24.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Statement for Programs of Study Catalog

Graduation Requirements

Minimum Technical GPA (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPARequirement)**:2.0**
TGPA is required for CS and Math courses. SeeTechnical GPA (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPARequirement)to clarify requirements.

Minimum Overall GPA:2.0
Minimum hours required for graduation:128 hours
General education:Students must complete the Campus General Education (https://courses.illinois.edu/gened/DEFAULT/DEFAULT/)**requirements including the campus general education language requirement.**

Orientation and Professional Development

Code	Title	Hours
CS 100	Freshman Orientation (optional course highly recommended may be used to help meet free elective requirements)	1

CS 210	Ethical & Professional Issues	2 or 3
or CS 211	Ethical and Professional Conduct	
ENG 100	Engineering Orientation[1]	0
Total Hours		3-4

Foundational Mathematics and Science

Code	Title	Hours
Total Hours chosen from the following:		**25**
MATH 221	Calculus I[2]	4
MATH 231	Calculus II	3
MATH 241	Calculus III	4
MATH 415	Applied Linear Algebra	3
or MATH 257	Linear Algebra with Computational Applications	
or MATH 416	Abstract Linear Algebra	
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
Science elective, from departmentally approved list below:		3
AE 202	Aerospace Flight Mechanics	3
ANTH 249	Evolution and Human Disease	3
ASTR 210	Introduction to Astrophysics	3
ASTR 350	The Big Bang, Black Holes, and the End of the Universe	3
ATMS 100	Introduction to Meteorology	3
ATMS 120	Severe and Hazardous Weather	3
ATMS 140	Climate and Global Change	3
ATMS 201	General Physical Meteorology	3
BIOE 205	Signals & Systems in Bioengrg	3
BIOE 206	Cellular Bioengineering	3
CEE 201	Systems Engrg & Economics	3
CEE 202	Engineering Risk & Uncertainty	3
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
CPSC 112	Introduction to Crop Sciences	4
CPSC 265	Genetic Engineering Lab	3
CPSC 270	Applied Entomology	3
DANC 345	Dance Anatomy and Kinesiology	3
FSHN 101	The Science of Food and How it Relates to You	3
FSHN 120	Contemporary Nutrition	3
GEOL 107	Physical Geology	4
GEOL 111	Emergence of Life	3
GEOL 117	The Oceans	3
GEOL 118	Natural Disasters	3
GEOL 143	History of Life	3
GEOL 208	History of the Earth System	4
IB 103	Introduction to Plant Biology	4
IB 104	Animal Biology	4
IB 150	Organismal & Evolutionary Biol	4
KIN 150	Bioscience of Human Movement	3
MCB 150	Molec & Cellular Basis of Life	4
MCB 244	Human Anatomy & Physiology I	3
NPRE 247	Modeling Nuclear Energy System	3
NRES 100	Fundamentals of Env Sci	3
NRES 102	Introduction to NRES	3

PLPA 204	Course PLPA 204 Not Found	
PSYC 204	Intro to Brain and Cognition	3
PSYC 224	Cognitive Psych	3
PSYC 248	Learning and Memory	3
SHS 240	Intro Sound & Hearing Science	3
SHS 280	Communication Neuroscience	3
One Science elective course:		**3**

Students must take one course from the Natural Science & Technology (NST) list, in addition to those taken as part of the General Education requirements. The course must be a course that is allowed for credit by the Grainger College of Engineering.

Exceptions to the list are:ASTR 100,PHYS 101andPHYS 102, andCHEM 101.

Students who select eitherASTR 121,ASTR 122, orASTR 150to satisfy the Science Elective requirement will not be allowed to takeASTR 131andASTR 132as free elective (maximum of 4 credit hours ofASTR 100-level can count towards graduation requirements for all Grainger College of Engineering Undergraduates)

Computer Science Technical Core

Code	Title	Hours
CS 125	Introduction to Computer Science	4
CS 126	Software Design Studio	3
CS 124	Introduction to Computer Science I (Intro to Computer Science I)	3
CS 128	Introduction to Computer Science II (Intro to Computer Science II)	3
CS 173	Discrete Structures	3
CS 222	Software Design Lab (Software Design Lab)	1
CS 225	Data Structures	4
CS 233	Computer Architecture	4
CS 241	System Programming	4
CS 361	Probability & Statistics for Computer Science	3
CS 357	Numerical Methods I	3
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3
Total Hours		35

Technical Electives

Code	Title	Hours
Technical electives to be chosen from departmentally approved list below. Students select eight courses, at least six of which must be advanced CS courses. Three courses must be selected from one area of CS and at least one course should satisfy the team project requirement.		**24**
Students must take a minimum of (6) six additional technical electives with at least eighteen (18) cumulative credit hours and chosen fromCS 397**and the CS 400-level courses, not including CS 400, CS 401, CS 402, CS 403 or**CS 491.CS 500**-level courses may be used as technical electives, but only with special permission from the CS Academic Office.**CS 397**and**CS 499**may be used with a cumulative maximum of six (6) credits from them counting as technical electives. One "CS-like" course in another department (e.g., ECE) may also be counted as a CS 400-level course with permission of the CS Academic Office. Non-CS tech electives will not be considered in focus areas.**		**18**
At least one (1) of the CS courses used for technical electives must be chosen from the list below of CS courses satisfying the team project requirement.		
Team Project Course List:		
CS 417	Virtual Reality (Virtual Reality)	3
CS 427	Software Engineering I	3 or 4
CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 445	Computational Photography (Until Spring 2018)	3 or 4
CS 437	Course CS 437 Not Found(Topics in Internet of Things)	3
CS 465	User Interface Design	3 or 4
CS 467	Social Visualization	3 or 4
CS 493	Senior Project II, ACP	3

CS 494	Senior Project II	3
CS 497	CS Team Project	1 to 3
CS 498	Special Topics (Virtual Reality (Spring 2018 and later); Mobile Interactive Design (Spring 2019 and later); Internet of Things (Fall 2019 and later))	1 to 4
At least three (3) of the CS courses used for technical electives must be chosen from a single focus area, from among the list of focus areas listed below. The team project course may be used as one of them.		
CS 498Special Topics andCS 598Special Topics classes may be included in a focus area by department approval.		
Software Foundations:		
CS 407	Cryptography (Cryptography)	3 or 4
CS 409	Course CS 409 Not Found(The Art of Web Design)	3
CS 422	Programming Language Design	3 or 4
CS 426	Compiler Construction	3 or 4
CS 427	Software Engineering I	3 or 4
CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 474	Logic in Computer Science (Logic in Computer Science)	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Development Methods	3 or 4
CS 492	Senior Project I	3
CS 498	Special Topics (Art and Science of Web Programming; Logic; Applied Cryptography; Software Testing)	1 to 4
CS 521	Advanced Topics in Programming Systems (Advanced Topics in Programming Systems)	4
CS 522	Programming Language Semantics	4
CS 524	Concurrent Progrmg Languages	4
CS 526	Advanced Compiler Construction	4
CS 527	Topics in Software Engineering	4
CS 528	Obj-Oriented Progrmg & Design	4
CS 576	Topics in Automated Deduction	2 to 4
CS 598	Special Topics (Verification; Languages)	2 to 4
Algorithms and Models of Computation:		
CS 407	Cryptography (Cryptography)	3 or 4
CS 413	Intro to Combinatorics	3 or 4
CS 473	Algorithms	4
CS 474	Logic in Computer Science (Logic in Computer Science)	3 or 4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Development Methods	3 or 4
CS 481	Advanced Topics in Stochastic Processes & Applications	3 or 4
CS 482	Simulation	3 or 4
CS 498	Special Topics (Logic; Parallel Algorithms; Computational Geometry)	1 to 4
CS 571	Combinatorial Mathematics	4
CS 572	Extremal Graph Theory	4
CS 573	Algorithms	4
CS 574	Randomized Algorithms	4
CS 575	Methods of Combinatorics	4
CS 576	Topics in Automated Deduction	2 to 4
CS 579	Computational Complexity	4
CS 580	Topics in Algorithmic Game Theory (Topics in Algorithmic Game Theory)	4
CS 583	Approximation Algorithms	4
CS 584	Embedded System Verification	4
CS 598	Special Topics (Crypto)	2 to 4
Intelligence and Big Data:		
CS 410	Text Information Systems	3 or 4

CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 416	Data Visualization (Data Visualization)	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 441	Applied Machine Learning (Applied Machine Learning)	3 or 4
CS 445	Computational Photography	3 or 4
ECE 470	Introduction to Robotics	4
CS 446	Machine Learning	3 or 4
CS 447	Natural Language Processing	3 or 4
CS 448	Audio Computing Laboratory (Audio Computing Laboratory)	3 or 4
CS 464	Topics in Societal and Ethical Impacts of Computer Technology (Topics in Societal and Ethical Impacts of Computer Technology)	3
CS 466	Introduction to Bioinformatics	3 or 4
CS 467	Social Visualization	3 or 4
CS 498	Special Topics (Data Visualization; Deep Learning; Applied Machine Learning; Social and Info Networks, Theory II (until Fall 2017); AI for Computer Games (until Fall 2017); Cyber Dystopia; Data Science & Analytics (Spring 2018 and after))	1 to 4
CS 469	Course CS 469 Not Found(Computational Advertising)	3
CS 510	Advanced Information Retrieval	4
CS 511	Advanced Data Management	4
CS 512	Data Mining Principles	4
CS 514	Advanced Topics in Network Science (Advanced Topics in Network Science)	4
CS 540	Deep Learning Theory (Deep Learning Theory)	4
CS 542	Statistical Reinforcement Learning (Statistical Reinforcement Learning)	4
CS 543	Computer Vision	4
CS 544	Optimiz in Computer Vision	4
CS 545	Machine Learning for Signal Processing (Machine Learning for Signal Processing)	4
CS 546	Advanced Topics in Natural Language Processing (Advanced Topics in NLP)	4
CS 548	Models of Cognitive Processes	4
CS 562	Advanced Topics in Security, Privacy, and Machine Learning (Advanced Topics in Security, Privacy, and ML)	4
CS 567	Course CS 567 Not Found(Social Signals and Social Media)	4
CS 576	Topics in Automated Deduction	2 to 4
CS 598	Special Topics (Machine Learning and Signal Processing)	2 to 4
Human and Social Impact:		
CS 409	Course CS 409 Not Found(The Art of Web Design)	3 or 4
CS 416	Data Visualization (Data Visualization)	3 or 4
CS 417	Virtual Reality (Virtual Reality)	3 or 4
CS 441	Applied Machine Learning (Applied Machine Learning)	3 or 4
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4
CS 464	Topics in Societal and Ethical Impacts of Computer Technology (Topics in Societal and Ethical Impacts of Computer Technology)	3
CS 465	User Interface Design	3 or 4
CS 467	Social Visualization	3 or 4
CS 468	Tech and Advertising Campaigns	3
CS 498	Special Topics (Art and Science of Web Prog; Computational Advertising; Data Visualization; Applied Machine Learning; HCI; Social and Information Networks; Virtual Reality; Cyber Dystopia; Cyber Physical Systems; Data Science & Analytics (Spring 2018 and after); Smart Cities; Learning and Computer Science; Intro to Online Learning Sys; Mobile Interactive Design)	1 to 4
CS 469	Course CS 469 Not Found(Computational Advertising)	3

CS 500	Current Topics in Computing Education Research (Current Topics in Computing Education Research)	4
CS 514	Advanced Topics in Network Science (Advanced Topics in Network Science)	4
CS 562	Advanced Topics in Security, Privacy, and Machine Learning (Advanced Topics in Security, Privacy, and ML)	4
CS 563	Advanced Computer Security	4
CS 565	Human-Computer Interaction	4
CS 566	Course CS 566 Not Found(Experimental HCI)	4
CS 567	Course CS 567 Not Found(Social Signals and Social Media)	4
Media:		
CS 409	Course CS 409 Not Found(The Art of Web Design)	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 417	Virtual Reality (Virtual Reality)	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 445	Computational Photography	3 or 4
CS 448	Audio Computing Laboratory (Audio Computing Laboratory)	3 or 4
CS 465	User Interface Design	3 or 4
CS 467	Social Visualization	3 or 4
CS 468	Tech and Advertising Campaigns	3
CS 498	Special Topics (Art and Science of Web Prog; Computational Advertising; Virtual Reality; Data Visualization; Audio Computing Lab)	1 to 4
CS 469	Course CS 469 Not Found(Computational Advertising)	3 or 4
CS 519	Scientific Visualization	4
CS 545	Machine Learning for Signal Processing (Machine Learning for Signal Processing)	4
CS 565	Human-Computer Interaction	4
CS 598	Special Topics (Machine Learning and Signal Proc.)	2 to 4
CS 567	Course CS 567 Not Found(Social Signals and Social Media)	4
Scientific, Parallel, and High Perfomance Computing:		
CS 419	Production Computer Graphics	3 or 4
CS 435	Cloud Networking (Cloud Networking)	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 457	Numerical Methods II	3
CS 466	Introduction to Bioinformatics	3 or 4
CS 482	Simulation	3 or 4
CS 483	Applied Parallel Programming	4
CS 484	Parallel Programming	3 or 4
CS 498	Special Topics (Parallel Algorithms)	1 to 4
CS 519	Scientific Visualization	4
CS 554	Parallel Numerical Algorithms	4
CS 555	Numerical Methods for PDEs	4
CS 556	Iterative & Multigrid Methods	4
CS 558	Topics in Numerical Analysis	4
Distributed Systems, Networking, and Security:		
CS 407	Cryptography (Cryptography)	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 431	Embedded Systems	3 or 4
CS 435	Cloud Networking (Cloud Networking)	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 437	Course CS 437 Not Found(Topics in Internet of Things)	3 or 4
CS 438	Communication Networks	3 or 4

CS 439	Wireless Networks	3 or 4
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4
CS 483	Applied Parallel Programming	4
CS 484	Parallel Programming	3 or 4
CS 498	Special Topics (Wireless Network Labs; Digital Forensics; Digital Forensics II; Applied Cryptography; Cyber Physical Systems; Internet of Things (Spring 2019 or after); Smart Cities)	1 to 4
CS 523	Advanced Operating Systems	4
CS 524	Concurrent Progrmg Languages	4
CS 525	Advanced Distributed Systems	4
CS 537	Course CS 537 Not Found(Advanced Topics in Internet of Things)	4
CS 538	Advanced Computer Networks	4
CS 562	Advanced Topics in Security, Privacy, and Machine Learning (Advanced Topics in Security, Privacy, and ML)	4
CS 563	Advanced Computer Security	4
Machines:		
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 431	Embedded Systems	3 or 4
CS 433	Computer System Organization	3 or 4
CS 484	Parallel Programming	3 or 4
CS 498	Special Topics (Internet of Things (Spring 2019 and after); Digital Forensics; Digital Forensics II)	3 or 4
CS 523	Advanced Operating Systems	4
CS 526	Advanced Compiler Construction	4
CS 533	Parallel Computer Architecture	4
CS 534	Course CS 534 Not Found(Advanced Topics in Computer Architecture)	
CS 536	Fault-Tolerant Dig Syst Design	4
CS 541	Computer Systems Analysis	4
CS 584	Embedded System Verification	4
CS 598	Special Topics (Parallel)	2 to 4

Computer Science Advanced Electives

Code	Title	Hours
Students must take for a letter grade a minimum of two (2) advanced elective courses comprising at least six (6) credit hours. These advanced elective courses must be distinct from courses used to satisfy the technical electives. They may be chosen fromCS 397Individual Study and the 400-level coursework offered for letter grade in ANY area offered at the University of Illinois at Urbana-Champaign. It is expected that students will select these additional advanced courses in a way that best augments their program of study. Consultation with a faculty mentors is highly encouraged. A maximum of six (6) credit hours ofCS 397may be used in the combination of technical electives and advanced electives.		6
Total Hours		6

Electives

Code	Title	Hours
The Grainger College of Engineering Liberal Education course list, or additional courses from the campus General Education lists for Social and Behavioral Sciences or Humanities and the Arts[3]		6
Free electives. Additional unrestricted course work, subject to certain exceptions as noted by the College, so that there are at least 128 credit hours earned toward the degree.[4]		18
Total Hours of Curriculum to Graduate		**128**

[1] *External transfer students take*ENG 300 *instead.*

[2] MATH 220*may be substituted, with four of the five credit hours applying toward the degree.*MATH 220*is appropriate for students with no background in calculus.*

[3] *The Grainger College of Engineering approved liberal education course list can be found*here *(*https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-GeneralEducationElectives*). Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.*

[4] *The Grainger College of Engineering restrictions to free electives can be found*here *(*https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-FreeElectives*).*

EP Documentation

DMI Documentation

Banner/Codebook Name

BS:Computer Science -UIUC

Program Code:

10KP0112BS

Degree Code

BS

Major Code

0112

Program Reviewer Comments

Deb Forgacs (dforgacs) (Tue, 29 Sep 2020 19:41:15 GMT): Rollback: requested.
Brooke Newell (bsnewell) (Fri, 13 Nov 2020 16:07:27 GMT): Rollback: Per dept request
Brooke Newell (bsnewell) (Fri, 13 Nov 2020 17:59:21 GMT): Rollback: Per Dept Request
Brooke Newell (bsnewell) (Tue, 24 Nov 2020 17:36:41 GMT): Rollback: Per dept request
Brooke Newell (bsnewell) (Tue, 24 Nov 2020 19:07:15 GMT): Fixed a few courses in POS with data entry errors
Barbara Lehman (bjlehman) (Wed, 17 Mar 2021 14:51:47 GMT): Rollback: Rolling back per Brooke Newell's request.
Candy Deaville (candyd) (Mon, 29 Mar 2021 14:32:18 GMT): Rollback: Per request

Key: 114

Key

GREEN HIGHLIGHT = Course addition, requirement replacement or updated hours

RED HIGHLIGHT = Course to be removed from listed requirements.

Current Requirement	Current Hours	Revised Requirements	Revised Hours
General education:		**General education:**	
Students must complete the Campus General Education requirements including the campus general education language requirement:		Students must complete the Campus General Education requirements including the campus general education language requirement	
https://courses.illinois.edu/gened/DEFAULT/DEFAULT		https://courses.illinois.edu/gened/DEFAULT/DEFAULT	
Orientation and Professional Development	**2-3**	**Orientation and Professional Development**	**2-4**
CS 100: Freshman Orientation (optional course highly recommended may be used to help meet free elective requirement	1	CS 100: Freshman Orientation (optional course highly recommended may be used to help meet free elective requir	1
CS 210: Ethical & Professional Issues	2	CS 210: Ethical & Professional Issues or CS 211: Ethical & Professional Conduct	2 or 3
ENG 100: Engineering Orientation[1]	0	ENG 100: Engineering Orientation[1]	0
Foundational Mathematics and Science	**25**	**Foundational Mathematics and Science**	**25**
MATH 221: Calculus I[2]	4	MATH 221: Calculus I[2]	4
MATH 231: Calculus II	3	MATH 231: Calculus II	3
MATH 241: Calculus III	4	MATH 241: Calculus III	4
MATH 415: Applied Linear Algebra	3	One of MATH 257: Computational Linear Algebra, MATH 415: Applied Linear Algebra, or MATH 416 Abstract Lin	3
PHYS 211: University Physics: Mechanics	4	PHYS 211: University Physics: Mechanics	4
PHYS 212: University Physics: Elec & Mag	4	PHYS 212: University Physics: Elec & Mag	4
Science Elective, from departmentally approved list, below:	3	**Science Elective, from departmentally approved list, below:**	3
		Students must take one course from the Natural Science & Technology (NST) list, in addition to those taken as part of the General Education requirements. The course must be a course that is allowed for credit by the Grainger College of Engineering.	
		Exceptions to the list are: ASTR 100, PHYS 101 and 102, and CHEM 101.	
		Students who select either ASTR 121, 122, or 150 to satisfy the Science Elective requirement will not be allowed to take ASTR 113, 131 and 132 as free elective (maximum of 4 credit hours of ASTR 100-level can count towards graduation requirements for all Grainger College of Engineering Undergraduates)	
AE 202: Aerospace Flight Mechanics	3		
ANTH 249: Evolution and Human Disease	3		
ASTR 210: Introduction to Astrophysics	3		
ASTR 350: The Big Bang, Black Holes, and the End of the Universe	3		
ATMS 100: Introduction to Meteorology	3		
ATMS 170: Severe and Hazardous Weather	3		
ATMS 140: Climate and Global Change	3		
ATMS 201: General Physical Meteorology	3		
BIOE 205: Signals & Systems in Bioengrg	3		
BIOE 206: Cellular Bioengineering	3		
CEE 201: Systems Engrg & Economics	3		
CEE 202: Engineering Risk & Uncertainty	3		
CHEM 102: General Chemistry I	3		
CHEM 103: General Chemistry Lab I	1		
CPSC 112: Introduction to Crop Sciences	4		
CPSC 265: Genetic Engineering Lab	3		
CPSC 270: Applied Entomology	3		
DANC 345: Dance Anatomy and Kinesiology	3		
CSHN 101: The Science of Food and How it Relates to You	3		
CSHN 120: Contemporary Nutrition	3		
GEOL 107: Physical Geology	4		
GEOL 111: Emergence of Life	3		
GEOL 117: The Oceans	3		
GEOL 118: Natural Disasters	3		
GEOL 143: History of Life	3		
GEOL 208: History of the Earth System	4		
IB 103: Introduction to Plant Biology	4		
IB 104: Animal Biology	4		
IB 150: Organismal & Evolutionary Biol	4		
KIN 150: Bioscience of Human Movement	3		
MCB 150: Molec & Cellular Basis of Life	4		
MLB 244: Human Anatomy & Physiology I	3		
NPRE 247: Modeling Nuclear Energy System	3		
NRES 100: Fundamentals of Env Sci	3		
NRES 102: Introduction to NRES	3		
PLPA 204: Introductory Plant Pathology	3		
PSYC 204: Intro to Brain and Cognition	3		
PSYC 224: Cognitive Psych	3		
PSYC 248: Learning and Memory	3		
STS 205: Intrd Social & History Science	3		
Computer Science Technical Core	35	**Computer Science Technical Core**	35
CS 125: Intro to Computer Science	4		
		CS 124: Intro to Computer Science I	4
CS 126: Software Design Studio	3 or 4		
		CS 128: Intro to Computer Science II	3
CS 173: Discrete Structures	3	CS 173: Discrete Structures	3
		CS 222: Software Design Lab	1
CS 225: Data Structures	4	CS 225: Data Structures	4
CS 233: Computer Architecture	4	CS 233: Computer Architecture	4
CS 241: System Programming	4	CS 241: System Programming	4
CS 361: Probability & Statistics for Computer Science	3	CS 361: Probability & Statistics for Computer Science	3
CS 357: Numerical Methods I	3	CS 357: Numerical Methods I	3
CS 374: Introduction to Algorithms & Models of Computation	4	CS 374: Introduction to Algorithms & Models of Computation	4
CS 421: Programming Languages & Compilers	3	CS 421: Programming Languages & Compilers	3
Technical Electives:	**24**	**Technical Electives:**	**18**
Technical electives to be chosen from departmentally approved list below. Students select eight courses, at least			
		Students must take a minimum of (6) six additional technical electives with at least eighteen (18) cumulative credit hours and chosen from CS 397 and the CS 400-level courses, not including CS 400, CS 401, CS 402, CS 403 or CS 491. CS 500-level courses may be used as technical electives, but only with special permission from the CS Academic Office. CS 297 and CS 499 may be used with a cumulative maximum of six (6) credits from them counting as technical electives. One "CS-like" course in another department (e.g.,	
		At least one (1) of the CS courses used for technical electives must be chosen from the list below of CS Team Project Course List:	
		CS 417: Virtual Reality	3
CS 427: Software Engineering I	3 or 4	CS 427: Software Engineering I	3 or 4
CS 428: Software Engineering II	3 or 4	CS 428: Software Engineering II	3 or 4
CS 429: Software Engineering II, ACP	3	CS 429: Software Engineering II, ACP	3
		CS 437: Topics in Internet of Things	3
CS 445: Computational Photography (Until Spring 2018)	3 or 4		
CS 465: User Interface Design	3 or 4	CS 465: User Interface Design	3 or 4
CS 467: Social Visualization	3 or 4	CS 467: Social Visualization	3 or 4
CS 493: Senior Project II, ACP	3	CS 493: Senior Project II, ACP	3
CS 494: Senior Project II	3	CS 494: Senior Project II	3
CS 497: CS Team Project	1 to 3	CS 497: CS Team Project	1 to 3
CS 498: Special Topics (Virtual Reality (Spring 2018 and later) Mobile Interactive Design (Spring 2019 and later) Mobil	3 or 4		
Three of the CS courses must be chosen from a single focus area, from among the areas below:			
		At least three (3) of the CS courses used for technical electives must be chosen from a sinlge focus area, CS 498 Special Topics and CS 598 Special Topics classes may be included in a focus area by department	
Software Foundations:		**Software Foundations:**	
		CS 407: Cryptography	3 or 4
		CS 409: The Art of Web Design	3
CS 422: Programming Language Design	3 or 4	CS 422: Programming Language Design	3 or 4
CS 426: Compiler Construction	3 or 4	CS 426: Compiler Construction	3 or 4
CS 427: Software Engineering I	3 or 4	CS 427: Software Engineering I	3 or 4
CS 428: Software Engineering II	3 or 4	CS 428: Software Engineering II	3 or 4
CS 429: Software Engineering II, ACP	3	CS 429: Software Engineering II, ACP	3
		CS 474 : Logic in Computer Science	3 or 4
CS 476: Program Verification	3 or 4	CS 476: Program Verification	3 or 4
CS 477: Formal Software Development Methods	3 or 4	CS 477: Formal Software Development Methods	3 or 4
CS 492: Senior Project I	3	CS 492: Senior Project I	3
CS 498: Special Topics (Art and Science of Web Programming; Logic: Applied Cryptography; Software Testing)	3 or 4		
		CS 521 : Advanced Topics in Programming Systems	4
CS 522: Programming Language Semantics	4	CS 522: Programming Language Semantics	4
CS 524: Concurrent Progmng Languages	4	CS 524: Concurrent Progmng Languages	4
CS 526: Advanced Compiler Construction	4	CS 526: Advanced Compiler Construction	4
CS 527: Topics in Software Engineering	4	CS 527: Topics in Software Engineering	4
CS 528: Obj-Oriented Progmng & Design	4	CS 528: Obj-Oriented Progmng & Design	4
CS 576: Topics in Automated Deduction	2 to 4	CS 576: Topics in Automated Deduction	2 to 4
CS 598: Special Topics (Verification; Languages)	3 or 4		
Algorithms and Models of Computation:		**Algorithms and Models of Computation:**	
		CS 407: Cryptography	3 or 4
CS 413: Intro to Combinatorics	3 or 4	CS 413: Intro to Combinatorics	3 or 4
CS 473: Algorithms	4	CS 473: Algorithms	4
		CS 474 : Logic in Computer Science	3 or 4
CS 475: Formal Models of Computation	3 or 4	CS 475: Formal Models of Computation	3 or 4
CS 476: Program Verification	3 or 4	CS 476: Program Verification	3 or 4
CS 477: Formal Software Development Methods	3 or 4	CS 477: Formal Software Development Methods	3 or 4
CS 481: Advanced Topics in Stochastic Processes & Applications	3 or 4	CS 481: Advanced Topics in Stochastic Processes & Applications	3 or 4
CS 482: Simulation	3 or 4	CS 482: Simulation	3 or 4
CS 498: Special Topics (Game Theory; Parallel Algorithms; Computational Geometry)	3 or 4		
CS 571: Combinatorial Mathematics	4	CS 571: Combinatorial Mathematics	4
CS 572: Extremal Graph Theory	4	CS 572: Extremal Graph Theory	4
CS 573: Algorithms	4	CS 573: Algorithms	4
CS 574: Randomized Algorithms	4	CS 574: Randomized Algorithms	4
CS 575: Methods of Combinatorics	4	CS 575: Methods of Combinatorics	4
CS 576: Topics in Automated Deduction	2 to 4	CS 576: Topics in Automated Deduction	2 to 4
CS 579: Computational Complexity	4	CS 579: Computational Complexity	4
		CS 580 : Topics in Algorithmic Game Theory	4
CS 583: Approximation Algorithms	4	CS 583: Approximation Algorithms	4
CS 584: Embedded System Verification	4	CS 584: Embedded System Verification	4
CS 598: Special Topics (Crypto)	3 or 4		
Intelligence and Big Data:		**Intelligence and Big Data:**	
CS 410: Text Information Systems	3 or 4	CS 410: Text Information Systems	3 or 4
CS 411: Database Systems	3 or 4	CS 411: Database Systems	3 or 4
CS 412: Introduction to Data Mining	3 or 4	CS 412: Introduction to Data Mining	3 or 4
CS 414: Multimedia Systems	3 or 4	CS 414: Multimedia Systems	3 or 4
		CS 416 : Data Visualization	3 or 4
CS 440: Artificial Intelligence	3 or 4	CS 440: Artificial Intelligence	3 or 4
		CS 441 : Applied Machine Learning	3 or 4
CS 445: Computational Photography	3 or 4	CS 445: Computational Photography	3 or 4
CS 4 470: Introduction to Robotics	4		
CS 446: Machine Learning	3 or 4	CS 446: Machine Learning	3 or 4
CS 447: Natural Language Processing	3 or 4	CS 447: Natural Language Processing	3 or 4
		CS 448 : Audio Computing Laboratory	3 or 4
		CS 464 : Topics in Societal and Ethical Impacts of Computer Technology	3
CS 466: Introduction to Bioinformatics	3 or 4	CS 466: Introduction to Bioinformatics	3 or 4
CS 467: Social Visualization	3 or 4	CS 467: Social Visualization	3 or 4
		CS 469: Computational Advertising	3
CS 498: Special Topics (Data Visualization; Deep Learning; Applied Machine Learning; Social and Info Networks; Theo	3 to 4		
CS 510: Advanced Information Retrieval	4	CS 510: Advanced Information Retrieval	4
CS 511: Advanced Data Management	4	CS 511: Advanced Data Management	4

CS 512: Data Mining Principles	4		CS 512: Data Mining Principles	4
			CS 514 : Advanced Topics in Network Science	4
			CS 540 : Deep Learning Theory	4
			CS 542 : Statistical Reinforcement Learning	4
CS 543: Computer Vision	4		CS 543: Computer Vision	4
CS 544: Optimiz in Computer Vision	4		CS 544: Optimiz in Computer Vision	4
			CS 545 : Machine Learning for Signal Processing	4
CS 546: Machine Learning in NLP	4		CS 546: Advanced Topics in NLP	4
CS 548: Models of Cognitive Processes	4		CS 548: Models of Cognitive Processes	4
			CS 562 : Advanced Topics in Security, Privacy, and ML	4
			CS 567 : Social Signals and Social Media	4
CS 576: Topics in Automated Deduction	2 to 4		CS 576: Topics in Automated Deduction	2 to 4
CS 598: Special Topics (Machine Learning and Signal Processing)	2 to 4			
Human and Social Impact:			**Human and Social Impact:**	
			CS 409: The Art of Web Design	3 or 4
			CS 416 : Data Visualization	3 or 4
			CS 417 : Virtual Reality	3 or 4
			CS 441 : Applied Machine Learning	3 or 4
CS 460: Security Laboratory	3 or 4		**CS 460: Security Laboratory**	3 or 4
CS 461: Computer Security I	4		CS 461: Computer Security I	4
CS 463: Computer Security II	3 or 4		CS 463: Computer Security II	3 or 4
			CS 464 : Topics in Societal and Ethical Impacts of Computer Technology	3
CS 465: User Interface Design	3 or 4		CS 465: User Interface Design	3 or 4
CS 467: Social Visualization	3 or 4		CS 467: Social Visualization	3 or 4
CS 468: Tech and Advertising Campaigns	3		CS 468: Tech and Advertising Campaigns	3
			CS 469: Computational Advertising	3
CS 498: Special Topics (Art and Science of Web Prog; Computational Advertising; Data Visualization; Applied Machine	1 to 4			
			CS 500: Current Topics in Computing Education Research	4
			CS 514 : Advanced Topics in Network Science	4
			CS 562 : Advanced Topics in Security, Privacy, and ML	4
CS 563:Advanced Computer Security	4		CS 563:Advanced Computer Security	4
CS 565:Human-Computer Interaction	4		CS 565:Human-Computer Interaction	4
			CS 566 : Experimental HCI	4
			CS 567 : Social Signals and Social Media	4
Media:			**Media:**	
			CS 409: The Art of Web Design	3 or 4
CS 414: Multimedia Systems	3 or 4		CS 414: Multimedia Systems	3 or 4
			CS 417 : Virtual Reality	3 or 4
CS 418: Interactive Computer Graphics	3 or 4		CS 418: Interactive Computer Graphics	3 or 4
CS 419: Production Computer Graphics	3 or 4		CS 419: Production Computer Graphics	3 or 4
CS 445: Computational Photography	3 or 4		CS 445: Computational Photography	3 or 4
			CS 448 : Audio Computing Laboratory	3 or 4
CS 465: User Interface Design	3 or 4		CS 465: User Interface Design	3 or 4
CS 467: Social Visualization	3 or 4		CS 467: Social Visualization	3 or 4
CS 468: Tech and Advertising Campaigns	3		CS 468: Tech and Advertising Campaigns	3
			CS 469: Computational Advertising	3
CS 498: Special Topics (Art and Science of Web Prog; Computational Advertising; Virtual Reality; Data Visualization; A	1 to 4			
CS 519: Scientific Visualization	4		CS 519: Scientific Visualization	4
			CS 545 : Machine Learning for Signal Processing	4
CS 565: Human-Computer Interaction	4		CS 565: Human-Computer Interaction	4
			CS 567 : Social Signals and Social Media	4
CS 598: Special Topics (Machine Learning and Signal Proc.)	2 to 4			2 to 4
Scientific, Parallel, and High Perfomance Computing:			**Scientific, Parallel, and High Perfomance Computing:**	
CS 419: Production Computer Graphics	3 or 4		CS 419: Production Computer Graphics	3 or 4
			CS 435 : Cloud Networking	3 or 4
CS 450: Numerical Analysis	3 or 4		CS 450: Numerical Analysis	3 or 4
CS 457: Numerical Methods II	3		CS 457: Numerical Methods II	3
CS 466: Introduction to Bioinformatics	3 or 4		CS 466: Introduction to Bioinformatics	3 or 4
CS 482: Simulation	3 or 4		CS 482: Simulation	3 or 4
CS 483: Applied Parallel Programming	4		CS 483: Applied Parallel Programming	4
CS 484: Parallel Programming	3 or 4		CS 484: Parallel Programming	3 or 4
CS 498: Special Topics (Parallel Algorithms)	2 to 4			
CS 519: Scientific Visualization	4		CS 519: Scientific Visualization	4
CS 554: Parallel Numerical Algorithms	4		CS 554: Parallel Numerical Algorithms	4
CS 555: Numerical Methods for PDEs	4		CS 555: Numerical Methods for PDEs	4
CS 556: Iterative & Multigrid Methods	4		CS 556: Iterative & Multigrid Methods	4
CS 558: Topics in Numerical Analysis	4		CS 558: Topics in Numerical Analysis	4
Distributed Systems, Networking, and Security:			**Distributed Systems, Networking, and Security:**	
			CS 407: Cryptography	3 or 4
CS 423: Operating Systems Design	3 or 4		CS 423: Operating Systems Design	3 or 4
CS 424: Real-Time Systems	3 or 4		CS 424: Real-Time Systems	3 or 4
CS 425: Distributed Systems	3 or 4		CS 425: Distributed Systems	3 or 4
CS 431: Embedded Systems	3 or 4		CS 431: Embedded Systems	3 or 4
			CS 435 : Cloud Networking	3 or 4
CS 436: Computer Networking Laboratory	3 or 4		CS 436: Computer Networking Laboratory	3 or 4
			CS 437 : Topics in Internet of Things	3 or 4
CS 438: Communication Networks	3 or 4		CS 438: Communication Networks	3 or 4
CS 439: Wireless Networks	3 or 4		CS 439: Wireless Networks	3 or 4
CS 460: Security Laboratory	3 or 4		CS 460: Security Laboratory	3 or 4
CS 461: Computer Security I	4		CS 461: Computer Security I	4
CS 463: Computer Security II	3 or 4		CS 463: Computer Security II	3 or 4
CS 483: Applied Parallel Programming	4		CS 483: Applied Parallel Programming	4
CS 484: Parallel Programming	3 or 4		CS 484: Parallel Programming	3 or 4
CS 498: Special Topics (Wireless Network Labs; Digital Forensics; Digital Forensics II; Applied Cryptography; Cyber Ph	1 to 4			
CS 523: Advanced Operating Systems	4		CS 523: Advanced Operating Systems	4
CS 524: Concurrent Progrmg Languages	4		CS 524: Concurrent Progrmg Languages	4
CS 525: Advanced Distributed Systems	4		CS 525: Advanced Distributed Systems	4
			CS 537 : Advanced Topics in Internet of Things	4
CS 538: Advanced Computer Networks	4		CS 538: Advanced Computer Networks	4
			CS 562 : Advanced Topics in Security, Privacy, and ML	4
CS 563: Advanced Computer Security	4		CS 563: Advanced Computer Security	4
Machines:			**Machines:**	
CS 423: Operating Systems Design	3 or 4		CS 423: Operating Systems Design	3 or 4
CS 424: Real-Time Systems	3 or 4		CS 424: Real-Time Systems	3 or 4
CS 426: Compiler Construction	3 or 4		CS 426: Compiler Construction	3 or 4
CS 431: Embedded Systems	3 or 4		CS 431: Embedded Systems	3 or 4
CS 433: Computer System Organization	3 or 4		CS 433: Computer System Organization	3 or 4
CS 484: Parallel Programming	3 or 4		CS 484: Parallel Programming	3 or 4
CS 498: Special Topics (Internet of Things (Spring 2019 and after); Digital Forensics; Digital Forensics II)	2 to 4			
CS 523:Advanced Operating Systems	4		CS 523:Advanced Operating Systems	4
CS 526:Advanced Compiler Construction	4		CS 526:Advanced Compiler Construction	4
CS 533:Parallel Computer Architecture	4		CS 533:Parallel Computer Architecture	4
			CS 534 : Advanced Topics in Computer Architecture	4
CS 536:Fault-Tolerant Dig Syst Design	4		CS 536:Fault-Tolerant Dig Syst Design	4
CS 541:Computer Systems Analysis	4		CS 541:Computer Systems Analysis	4
CS 584:Embedded System Verification	4		CS 584:Embedded System Verification	4
CS 598:Special Topics: Parallel	2 to 4			
Computer Science Advanced Electives			**Computer Science Advanced Electives**	
Students must take for a letter grade a minimum of two (2) advanced elective courses comprising at least six (6) credit hours. These advanced elective courses must be distinct from courses used to satisfy the technical electives. They may be chosen from CS 397 Individual Study and the 400-level coursework offered for letter grade in ANY area offered at the University of Illinois at Urbana-Champaign. It is expected that students will select these additional advanced courses in a way that best augments their program of study. Consultation with a faculty	6		Students must take for a letter grade a minimum of two (2) advanced elective courses comprising at least six (6) credit hours. These advanced elective courses must be distinct from courses used to satisfy the technical electives. They may be chosen from CS 397 Individual Study and the 400-level coursework offered for letter grade in ANY area offered at the University of Illinois at Urbana-Champaign. It is expected that students will select these additional advanced courses in a way that best augments their program of study. Consultation with a faculty	6
General Education Requirements			**General Education Requirements**	
A minimum of six courses is required, as follows:	**18**		**A minimum of six courses is required, as follows:**	**18**
Social and Behavioral Sciences	6		Social and Behavioral Sciences	6
Humanities & the Arts	6		Humanities & the Arts	6
The Grainger College of Engineering Liberal Education course list, or from the campus General Education lists for	6		The Grainger College of Engineering Liberal Education course list, or from the campus General Education lists for	6
Cultural Studies: Non-Western Cultures (1 course)			Cultural Studies: Non-Western Cultures (1 course)	
Cultural Studies: U.S. Minorities Cultures (1 course)			Cultural Studies: U.S. Minorities Cultures (1 course)	
Cultural Studies: Western/Comparative Cultures (1 course)			Cultural Studies: Western/Comparative Cultures (1 course)	
Non-Primary Language Requirement	**0-9**		**Non-Primary Language Requirement**	**0-9**
Completion of the third semester or equivalent of a non-primary language is required. Completion of three years of a			Completion of the third semester or equivalent of a non-primary language is required. Completion of three years	
University Composition	**4-6**		**University Composition**	**4-6**
RHET 105: Writing and Research	4		RHET 105: Writing and Research	4
CMN 111: Oral & Written Comm I	3		CMN 111: Oral & Written Comm I	3
& CMN 112: and Oral & Written Comm II	3		& CMN 112: and Oral & Written Comm II	3
ESL 111: Intro to Academic Writing I	2		ESL 111: Intro to Academic Writing I	2
& ESL 112: and Intro to Academic Writing II	2		& ESL 112: and Intro to Academic Writing II	3
ESL 115: Principles of Academic Writing	4		ESL 115: Principles of Academic Writing	4
Advanced Composition May be satisfied by completing a course in either the liberal education or free elective			Advanced Composition May be satisfied by completing a course in either the liberal education or free elective	
Electives			**Electives**	
The Grainger College of Engineering Liberal Education course list, or additional courses from the campus General	6		The Grainger College of Engineering Liberal Education course list, or additional courses from the campus General	6
Free electives. Additional unrestricted course work, subject to certain exceptions as noted by the College, so that there	**18**		Free electives. Additional unrestricted course work, subject to certain exceptions as noted by the College, so that	**18**
Total Hours of Curriculum to Graduate	**128**		Total Hours of Curriculum to Graduate	**128**
Footnotes			**Footnotes**	
External transfer students take ENG 100 instead.			*External transfer students take ENG 100 instead.*	
MATH 220 may be substituted, with four of the five credit hours applying toward the degree. MATH 220 is			*MATH 220 may be substituted, with four of the five credit hours applying toward the degree. MATH 220 is*	
The Grainger College of Engineering approved liberal education course list can be found here. Note that these			*The Grainger College of Engineering approved liberal education course list can be found here. Note that these*	
The Grainger College of Engineering restrictions to free electives can be found here.			*The Grainger College of Engineering restrictions to free electives can be found here.*	

Letters of Agreement with the CS+X Partners

Table of Contents

CS + Anthropology
10KV5348BSLA: Computer Science & Anthropology, BSLAS

Dear Ripan,

Thank you for your prompt reply.

---Elsa

On 3/26/21 6:51 AM, Malhi, Ripan S wrote:
Dear Elsa,

The revision to CS+Anthropology looks fine.

best,
Ripan

Sent from my iPhone

On Mar 26, 2021, at 1:39 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Brenda, Karla, Ripan and Maritza,

I apologize for blitzing more of you than is likely appropriate, but it is getting fairly urgent that I know whether Anthropology is in agreement with the latest version of the revision to the CS+Anthropology program. I would very much appreciate an update on the status of the review of these revisions.

---Elsa

On 3/16/21 7:55 PM, Elsa L. Gunter wrote:

Dear Ripan and Maritza,

We last corresponded on Sept 9, 2020 at 5:30pm. Since then there were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class. I'm attaching a pdf that graphically describes the current state of the program revision.

I need a clear email stating whether you accept the following curriculum modification for the CS+Anthropology program in order for the CS-ENG program revision to move forward, enabling the revision of the other CS programs to also move forward. A reply to this email will suffice. The changes are:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), and CS 242(3cr) -> CS 222(1cr), and (CS 126 or CS 128 or ECE 220) replaces (CS 125 or ECE 220) as the programming prerequisite for CS 225, and CS 128 is open to all, but CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from (CS 125 or ECE 220) to (CS 124 or CS 125 or ECE 220).

Justification: CS 128 takes about 2/3 of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 403, not including CS 491)). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the requirement for CS 421 Programming Languages & Compilers.

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+Anthropology to customize their program to better focus on the aspects of CS that impact the areas of Anthropology most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math Department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an

emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Anthropology should have the option of a stronger linear algebra class with stronger ties to programming.

---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
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Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana – Champaign

Minimum hours required for graduation: 120 hours

Required Computer Science Coursework			
CS 100	Freshman Orientation (recommended) [1]		0-1
~~CS 125~~	~~Intro to Computer Science~~	CS 124 Intro to Comouter Science I	3
~~CS 126~~	~~Software Design Studio~~	CS 128 Intro to Computer Science II	3
		CS 222 Software Design Studio	1
CS 173	Discrete Structures		3
CS 225	Data Structures		4
CS 233	Computer Architecture	or CS 240 Introduction to Computer Systems 3	4
CS 241	System Programming	Two 400-level CS courses 6-8 (above 403, not including491)	4
Choose one of the following:			3
STAT 200	Statistical Analysis		
STAT 212	Biostatistics		
CS 361	Probability & Statistics for Computer Science		
CS 374	Introduction to Algorithms & Models of Computation		4
CS 421	Programming Languages & Compilers		3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)			
MATH 221 or MATH 220	Calculus I Calculus		4-5
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra	2 or 3
MATH 231	Calculus II		3
Required Anthropology Coursework - Minimum of 24 hours			

8 - 11

CS + Astronomy
10KV5349BSLA: Computer Science & Astronomy, BSLAS

Dear Bryan,

Thank you very much for the information, and for getting this done so quickly. I will need to be back in touch with you about how we get all this into CIM.

---Elsa

On 3/26/21 11:06 AM, Dunne, Bryan C wrote:

Hello Elsa,

Our curriculum committee chair has indicated that the Astronomy Department supports the changes to the CS+Astronomy curriculum.

Regards,

Bryan Dunne

--
Bryan C. Dunne
Teaching Assistant Professor
Department of Astronomy | University of Illinois at Urbana-Champaign
121 Astronomy Building | M/C 221 | Urbana, IL 61801
217.333.5537 | bdunne@illinois.edu | Appointments: go.illinois.edu/bdunne-meet

www.astro.illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Date: Friday, March 26, 2021 at 9:57 AM
To: Dunne, Bryan C <bdunne@illinois.edu>, Looney, Leslie <lwl@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>, Wong, Tony <wongt@illinois.edu>
Subject: Re: [cs+x] Changes to curricula?

Dear Bryan,

Thank you very much for your looking into this. I will await you further information.

---Elsa

On 3/26/21 6:57 AM, Dunne, Bryan C wrote:

Hello Elsa,

Sorry, my inbox has been very full lately. I apologize for not getting back to you.

I will follow up with our curriculum committee today and get back to you today.

Bryan

Get Outlook for iOS

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Friday, March 26, 2021 2:07:30 AM
To: Looney, Leslie <lwl@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>; Dunne, Bryan C <bdunne@illinois.edu>; Wong, Tony <wongt@illinois.edu>
Subject: Re: [cs+x] Changes to curricula?

Dear Prof Leslie Looney,

I have recently attempted to communicate with Prof Bryan Dunne concerning the status of the CS+Astronomy curricula revision. Judging by the Astronomy website, it seems that he may no long be the right point of contact for that. Could you please either let me know what is the current status of the review of the proposed changes, or put me in contact with the right person with whom to discuss this?

---Elsa

On 3/15/21 2:51 AM, Elsa L. Gunter wrote:

Dear Bryan,

There were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class.

I need a clear email stating whether you accept the following curriculum modification for the CS+Astronomy program:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (not including CS 491))

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+Astronomy to customize their program to better focus on the aspects of CS that impact the areas of Astronomy most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257 or Math 415).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Astronomy should have the option of a stronger linear algebra class with stronger ties to programming.

If you are OK with the above, we need a clear letter of approval from Astronomy as soon as reasonably possible. We should also discuss the specifics of how this all gets entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

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--
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Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Required Computer Science Coursework				**32-33**
CS 100	Freshman Orientation (recommended) [1]			0-1
~~CS 125~~	~~Intro to Computer Science~~	CS 124 Intro to Comouter Science I	3	4
~~CS 126~~	~~Software Design Studio~~	CS 128 Intro to Computer Science II	3	4
		CS 222 Software Design Studio	1	
CS 173	Discrete Structures			3
CS 225	Data Structures			4
CS 233	Computer Architecture	or CS 240 Introduction to Computer Systems	3	4
CS 241	System Programming	Two 400-level CS courses	6-8	4
		(above 403, not including491)		
Choose one of the following:				3
STAT 200	Statistical Analysis			
STAT 212	Biostatistics			
CS 361	Probability & Statistics for Computer Science			
CS 374	Introduction to Algorithms & Models of Computation			4
CS 421	Programming Languages & Compilers			3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)				**9-10**
MATH 221	Calculus I			4-5
or MATH 220	Calculus			
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra	2	or 3
MATH 231	Calculus II			3
Required Astronomy Coursework - Minimum of 27 Hours				

8 - 11

CS + Chemistry
10KV5350BSLA: Computer Science & Chemistry, BSLAS

Dear Scott,

Thank you very much, particularly for your promptness with this matter.

---Elsa

On 3/16/21 7:15 AM, Silverman, Scott K wrote:

Dear Elsa,

On behalf of Chemistry in my associate head role, I approve these curriculum changes for the CS+Chemistry degree program.

Best wishes,
Scott

****

Scott K. Silverman
Professor of Chemistry and Associate Head of Budget and Operations
140 Roger Adams Laboratory
Department of Chemistry, Box 57-5
University of Illinois at Urbana-Champaign
600 South Mathews Avenue
Urbana, IL 61801
http://scs.illinois.edu/silverman
tel (217) 244-4489
@sksilverman https://twitter.com/sksilverman

****

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Tuesday, March 16, 2021 1:11 AM
To: Silverman, Scott K <sks@illinois.edu>; Huang, Tina H <thhuang@illinois.edu>
Cc: Spinner, D Todd <spinner@illinois.edu>; scs-advising <scs-advising@illinois.edu>; Herzog, Stephen M <smherzog@illinois.edu>; Schulze, Heather A <schulze@illinois.edu>; Lu, Yi <yi-lu@illinois.edu>
Subject: Re: Changes to curricula?

Dear Scott, Tina, and Yi,

We communicated last back on on Sept 23 (10:55am). There were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class. I'm attaching a pdf that graphically describes the revision.

I need a clear email stating whether you accept the following curriculum modification for the CS+Chemistry program in order for the CS-ENG program revision to move forward, enabling the revision of the other CS programs to also move forward. A reply to this email will suffice. The changes are:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), and CS 242(3cr) -> CS 222(1cr), and (CS 126 or CS 128 or ECE 220) replaces CS 125 as the programming prerequisite for CS 225, CS 128 is open to all, but CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125 or ECE 220).

Justification: CS 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 403, not including CS 491)). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the requirement

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+Chemistry to customize their program to better focus on the aspects of CS that impact the areas of Statistics most in line

with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math Department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Chemistry should have the option of a stronger linear algebra class with stronger ties to programming.

---Elsa

Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Required Computer Science Coursework				
CS 100	Freshman Orientation (recommended) [1]			0-1
~~CS 125~~	~~Intro to Computer Science~~	CS 124	Intro to Comouter Science I 3	4
~~CS 126~~	~~Software Design Studio~~	CS 128	Intro to Computer Science II 3	3
		CS 222	Software Design Studio 1	
CS 173	Discrete Structures			3
CS 225	Data Structures			4
CS 233	Computer Architecture	or CS 240	Introduction to Computer Systems 3	4
CS 241	System Programming	Two 400-level CS courses	6-8	4
		(above 403, not including491)		
Choose one of the following:				3
STAT 200	Statistical Analysis			
STAT 212	Biostatistics			
CS 361	Probability & Statistics for Computer Science			
CS 374	Introduction to Algorithms & Models of Computation			4
CS 421	Programming Languages & Compilers			3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)				
MATH 221	Calculus I			4-5
or MATH 220	Calculus			
MATH 225	Introductory Matrix Theory	or MATH 257	Intro to Linear Algebra 2	or 3
MATH 231	Calculus II			3
Required Chemistry Coursework - Minimum of 24 hours				

Total 8-11

CS + Economics
10KV5667BSLA: Computer Science & Economics, BSLAS

Dear Jamie,

Thank you very much fro getting back to me and letting me know.

Yes, we are trying to get this tied up for starting Fall 2021. The courses have all been approved. We are working on finishing the curriculum revisions themselves.

---Elsa

On 3/26/21 10:10 AM, Thomas-Ward, Jamie Michele wrote:
Hi Elsa,
Apologies for the delay. The Economics department approves and supports these changes to the CS+Econ curriculum.

Could you let us know when the timing of these changes would take effect? If it's for this fall, then we would need to advise students accordingly in April and throughout the summer as they make their fall schedules.

THANKS,

JAMIE THOMAS-WARD, JD, MS
Associate Director of Undergraduate Studies
University of Illinois at Urbana-Champaign
College of Liberal Arts & Sciences
Department of Economics
214 David Kinley Hall
1407 W Gregory Dr
Urbana, Illinois 61801
217.244.5237 | thomas99@illinois.edu
www.economics.illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Friday, March 26, 2021 8:59 AM
To: Thomas-Ward, Jamie Michele <thomas99@illinois.edu>; Powers, Elizabeth T <epowers@illinois.edu>; Bilsbury, Tosha <bilsbury@illinois.edu>; econug@illinois.edu
Subject: Re: Changes to curricula?

Dear Elizabeth, Jamie, and Tosha,

I have not received a reply to this previous email, and the matter is getting rather urgent. Could I please have an update on the status of this.
---Elsa

On 3/16/21 4:46 PM, Elsa L. Gunter wrote:

Dear Jamie, Elizabeth, and Tosha,

Our last correspondence was on Sept 14 at 11:59am. Since then there were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class. I'm attaching a pdf that graphically describes the current state of the program revision.

I need a clear email stating whether you accept the following curriculum modification for the CS+Economics program in order for the CS-ENG program revision to move forward, enabling the revision of the other CS programs to also move forward. A reply to this email will suffice. The changes are:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), and CS 242(3cr) -> CS 222(1cr), and (CS 126 or CS 128 or ECE 220) replaces CS 125 as the programming prerequisite for CS 225, CS 128 is open to all, but CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125 or ECE 220).

Justification: CS 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will

provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 403, not including CS 491)). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the requirement

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+Economics to customize their program to better focus on the aspects of CS that impact the areas of Statistics most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math Department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Economics should have the option of a stronger linear algebra class with stronger ties to programming.

---Elsa

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Required Computer Science Courses:			
CS 100	Freshman Orientation (recommended) [1]		0-1
~~CS 125~~	~~Intro to Computer Science~~	CS 124 Intro to Comouter Science I 3 CS 128 Intro to Computer Science II 3 CS 222 Software Design Studio 1	~~4~~
~~CS 126~~	~~Software Design Studio~~		~~1~~
CS 173	Discrete Structures		3
CS 225	Data Structures		4
CS 233	Computer Architecture	or CS 240 Introduction to Computer Systems 3	4
CS 241	System Programming	Two 400-level CS courses (above 403, not including491) 6-8	4
Choose one of the following:			3
ECON 202	Economic Statistics I		
STAT 200	Statistical Analysis		
STAT 212	Biostatistics		
CS 361	Probability & Statistics for Computer Science		
CS 374	Introduction to Algorithms & Models of Computation		4
CS 421	Programming Languages & Compilers		3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements):			
MATH 220 or MATH 221	Calculus Calculus I		4-5
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra 2 or 3	
MATH 231	Calculus II		3
Required Economics Coursework -- minimum 24 hours			

Total 8-11

CS + GGIS

10KV5676BSLA: Computer Science & Geography & Geographic Information Science, BSLAS

Dear Tony,

Thank you very much, and particularly for your promptness.

We need to coordinate very soon on how to do all the entry into CIM. LAS probably has their procedures, but it would probably make sense for us to enter most of the fields for programs that aren't making big changes on their side. If you have preferences, please let us know. I think we can not initiate the changes on your behalf, but I can edit them when they get to me, so we would need to work out a workflow.

---Elsa

On 3/15/21 10:28 AM, Wang, Tony wrote:
Hi Elsa,

Thanks for sending me the updates. I have reviewed the curriculum modifications and approved the 3 proposed changes:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming

and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 402, not including CS 491))

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+GGIS to customize their program to better focus on the aspects of CS that impact the areas of GGIS most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+GGIS should have the option of a stronger linear algebra class with stronger ties to programming.

Best,
Tony

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Monday, March 15, 2021 3:07 AM
To: Wang, Tony <xwang98@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Re: [cs+x] Changes to curricula? Take two

Dear Tony,

I'm sorry; I got my wires crossed. Please disregard the previous email (or rather global replace Astronomy with GGIS). So for the right version.

There were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class.

I need a clear email stating whether you accept the following curriculum modification for the CS+GGIS program:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 402, not including CS 491))

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+GGIS to customize their program to better focus on the aspects of CS that impact the areas of GGIS most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+GGIS should have the option of a stronger linear algebra class with stronger ties to programming.

If you are OK with the above, we need a clear letter of approval from GGIS as soon as reasonably possible. We should also discuss the specifics of how this all gets entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Required Computer Science Courses:		
CS 100	Freshman Orientation (recommended) [1]	1
~~CS 125~~	~~Intro to Computer Science~~	~~4~~
~~CS 126~~	~~Software Design Studio~~	~~3~~
CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 233	Computer Architecture	4
CS 241	System Programming	4
Choose one of the following:		3
STAT 200	Statistical Analysis	
STAT 212	Biostatistics	
CS 361	Probability & Statistics for Computer Science (recommended)	
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3 or 4
Mathematics (may also fulfill the General Education QR I and II requirements)		
MATH 220 or MATH 221	Calculus Calculus I	5
MATH 225	Introductory Matrix Theory	2
MATH 231	Calculus II	3
Required Geographic Information Science Coursework - Minimum of 24 hours		

CS 124 Intro to Computer Science I 3
CS 128 Intro to Computer Science II 3
CS 222 Software Design Lab 1

or CS 240 Introduction to Computer Systems 3
Two 400-level CS courses 6-8
above CS 403, excluding CS 421 and CS 491

Total 8-11

or MATH 257 Intro to Linear Algebra 2 or 3

CS + Linguistics
10KV5351BSLA: Computer Science & Linguistics, BSLAS

Dear Zach,

Thank you very much for letting me know.

---Elsa

On 3/25/21 1:15 PM, Reed, Zacharia John wrote:
I've discussed this with the CS+Ling faculty, and they are ok with the changes.

ZACH REED
Academic Advisor

Department of Linguistics
School of Literatures, Cultures & Linguistics
University of Illinois at Urbana-Champaign
707 South Mathews Avenue
4072A | M/C 171
Urbana, IL 61801
217.300.7382 | zreed2@illinois.edu
linguistics.illinois.edu

From: "Gunter, Elsa" <egunter@illinois.edu>
Date: Friday, March 19, 2021 at 3:56 AM
To: "Reed, Zacharia John" <zreed2@illinois.edu>
Cc: "Lasersohn, Peter Nathan" <lasersoh@illinois.edu>, "Yoon, James" <jyoon@illinois.edu>
Subject: Re: [cs+x] Changes to curricula?

Dear Zach,

We last corresponded on Sept 10, 2020. Since then, there were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class.

I need a clear email stating whether Linguistics accept the following curriculum modification for the CS+Linguistics program:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces the prerequisite of CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about 2/3 of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 403, not including CS 491)). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the requirement of CS 421.

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+Linguistics to customize their program to better focus on the aspects of CS that impact the areas of Linguistics most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Linguistics should have the option of a stronger linear algebra class with stronger ties to programming.

I have attached a pdf version of the changes to help you see what is being suggested. Red are the new, and green is old and new combined.

If you are OK with the above, we need a clear letter of approval (email should suffice) from Linguistics as soon as reasonably possible. We should also discuss the specifics of how this all gets entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Required Computer Science Coursework				
CS 100	Freshman Orientation (recommended) [1]			0-1
~~CS 123~~	~~Intro to Computer Science~~	CS 124 Intro to Comouter Science I	3	4
~~CS 126~~	~~Software Design Studio~~	CS 128 Intro to Computer Science II	3	3
		CS 222 Software Design Studio	1	
CS 173	Discrete Structures			3
CS 225	Data Structures			4
CS 233	Computer Architecture	or CS 240 Introduction to Computer Systems	3	4
CS 241	System Programming	Two 400-level CS courses (above 403, not including491)	6-8	4
Choose one of the following:				3
STAT 200	Statistical Analysis			
STAT 212	Biostatistics			
CS 361	Probability & Statistics for Computer Science			
CS 374	Introduction to Algorithms & Models of Computation			4
CS 421	Programming Languages & Compilers			3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)				
MATH 221 or MATH 220	Calculus I Calculus			4-5
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra	2	or 3
MATH 231	Calculus II			3
Required Linguistics Coursework - Minimum of 24 hours				

Total 8-11

CS + Philosophy
10KV5679BSLA: Computer Science & Philosophy, BSLAS

Dear Kohei,

Thank you for you response, and I'm glad the Department has had a chance to discuss them. I will work with Christy to discuss the best way to enter all this into CIM.

---Elsa

On 3/22/21 4:37 PM, Kohei Kishida wrote:
Dear Elsa,

Thank you so much for giving us time to discuss this. We think these changes are a great idea --- so yes the Department of Philosophy approves of them.

The person in charge of CIM would be Christy Foster <foste@illinois.edu> (also cc'd).

Thanks again, and very best,
Kohei

On 2021/03/19 5:02, Elsa L. Gunter wrote:

Dear Kohei,

I hope all is going as well, or at least as can be expected under these unusual circumstances. I await your final word.

Please put me in touch with whomever does the actual work of entering information into CIM so we can work out a workflow for getting these changes in to request approval, once a final confirmation has been reached.

---Elsa

On 3/19/21 4:52 AM, Kohei Kishida wrote:

Dear Elsa,

Thank you so much for the information! This all looks great to me, but I'd like to first discuss it with others in Philosophy. I should be able to confirm soon, next week if not today.

Thank you again, and very best,
Kohei

On 2021/03/19 4:32, Elsa L. Gunter wrote:

Dear Kohei,

We last corresponded on Sept 9, 2020 at 9:57pm. Since then, there were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class.

I need a clear email stating whether Philosophy accept the following curriculum modification for the CS+Philosophy program:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces the prerequisite of CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about 2/3 of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 403, not including CS 491)). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the requirement of CS 421.

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in CS+Philosophy to customize their program to better focus on the aspects of CS that impact the areas of Philosophy most in line with their interests.

3) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Philosophy should have the option of a stronger linear algebra class with stronger ties to programming.

I have attached a pdf version of the changes to help you see what is being suggested. Red are the new, and green is old and new combined.

If you are OK with the above, we need a clear letter of approval (email should suffice) from Philosophy as soon as reasonably possible. We should also discuss the specifics of how this all gets entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa

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Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Required Computer Science Courses (32-33 hours):			
CS 100	Freshman Orientation (recommended) [1]		1
~~CS 125~~	~~Intro to Computer Science~~	CS 124 Intro to Comouter Science I 3 CS 128 Intro to Computer Science II 3 CS 222 Software Design Studio 1	~~4~~
~~CS 126~~	~~Software Design Studio~~		~~3~~
CS 173	Discrete Structures		3
CS 225	Data Structures		4
CS 233	Computer Architecture	or CS 240 Introduction to Computer Systems 3 Two 400-level CS courses 6-8 (above 403, not including491)	4
CS 241	System Programming		4
Choose one of the following:			3
STAT 200	Statistical Analysis		
STAT 212	Biostatistics		
CS 361	Probability & Statistics for Computer Science		
CS 374	Introduction to Algorithms & Models of Computation		4
CS 421	Programming Languages & Compilers		3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)			
MATH 220 or MATH 221	Calculus Calculus I		4-5
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra	2 or 3
MATH 231	Calculus II		3
Required Philosophy coursework			

Total 8-11

Mathematics & CS

10KV1438BSLA: Mathematics & Computer Science, BSLAS

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Mathematics

273 Altgeld Hall, MC-382
1409 West Green Street
Urbana, IL 61801

Re: Change of CS 125 and changes to Math+CS

The Mathematics Department acknowledges and supports the proposed change of eliminating CS 125 to instead create CS 124 and CS 128. The department will be submitting a Major change to allow CS 124 to replace CS 125 as one of its allowed courses in its core requirements.

With this change, the department supports making not only the necessary changes in the Math + CS program to accommodate the CS 125 elimination, but additional changes to the degree to better meet students' needs. In particular, replacing CS 125 by CS 124 and CS 128 and CS 126 by CS 222, adding flexibility by allowing students to choose between CS 233 and CS 241 or CS 240 and two 400-level CS courses. At this time, we also support making the additional changes, which formalize substitutions already regularly made, by allowing Math 413 and 427 in Group II and Math 424 in Group IV. Lastly, we support the suggestion by CS to remove CS 481 and 482 as options from Group V.

The Mathematics department has no concerns for enrollment issues with these changes and is pleased with the overall programatic initiatives CS is making to its Undergraduate offerings at this time.

Sincerely

Randy McCarthy

Randy McCarthy
Professor of Mathematics
Dir of Undergraduate Studies in Math
rmccrthy@illinois.edu

Minimum hours required for graduation: 120 hours.

Requirements

CS 100	Freshman Orientation (recommended)	0-1
Calculus through MATH 241-Calculus III		11-12
MATH 347	Fundamental Mathematics	3
or MATH 348	Fundamental Mathematics-ACP	
~~CS 125~~	~~Intro to Computer Science~~	~~4~~
~~CS 126~~	~~Software Design Studio~~	~~1~~
CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 233	Computer Architecture	4
CS 241	System Programming	4
CS/MATH 357	Numerical Methods I	3
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3
~~CS 457~~	~~Numerical Methods II~~	~~3~~
MATH 415	Applied Linear Algebra	3
or MATH 416	Abstract Linear Algebra	
400-level mathematics and computer science requirements:		18

CS 124 Intro to Comouter Science I 3
CS 128 Intro to Computer Science II 3
CS 222 Software Design Studio 1

or CS 240 Introduction to Computer Systems 3
Two 400-level CS courses 6-8
(above 403, not including491)

Total 8-11

CS/MATH 450 Numerical Analysis 3

or MATH 257 Intro to Linear Algebra 3

400-level mathematics and computer science requirements:		18
Students must select at least six 400-level mathematics and computer science courses, including one from each of the following groups:		
GROUP I		
CS 361	Probability & Statistics for Computer Science (recommended)	
MATH 461	Probability Theory	
STAT 400/MATH 463	Statistics and Probability I	
GROUP II		
MATH 412	Graph Theory	
MATH 417	Intro to Abstract Algebra	
GROUP III		
MATH 441	Differential Equations	
MATH 446	Applied Complex Variables	
MATH 484	Nonlinear Programming	
GROUP IV		
MATH 444	Elementary Real Analysis	
MATH 447	Real Variables	
GROUP V		
MATH 414	Mathematical Logic	
CS/MATH 473	Algorithms	
CS/MATH 475	Formal Models of Computation	
CS 476	Program Verification	
CS 477	Formal Software Development Methods	
~~CS 481~~	~~Advanced Topics in Stochastic Processes & Applications~~	
~~CS 482~~	~~Simulation~~	

MATH 413 Combinatorics
MATH 427 Honors Abstract Algebra

MATH 424 Honors Real Analysis

Statistics & CS
10KV0464BSLA: Statistics & Computer Science, BSLAS

Dear David,

Thank you very much, particularly for your promptness with this matter.

---Elsa

On 3/16/21 3:06 AM, Unger, David wrote:

Dear Elsa,

Please accept this email as confirmation that the Department of Statistics accepts the curricular changes proposed by the Department of Computer Science. Further, we understand and support the impact these changes will have on our collaborative BSLAS: Statistics & Computer Science degree program.

Thank you for all your hard work in this effort.

-David

David Unger

Director of Undergraduate Programs

Department of Statistics

University of Illinois at Urbana-Champaign

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Monday, March 15, 2021 9:13 PM
To: Unger, David <dunger@illinois.edu>

Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Re: Changes to curricula? Take two.

Dear David,

I am aware of the revisions being made on the Statistics side of the Stat&CS program and I believe you are fully aware of the changes we are asking you to make of the CS side of that program, but I will summarize the CS changes here, and ask that you reply to this email confirming that you accept those changes.

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), (CS 126 or CS 128) replaces CS 125 as the programming prerequisite for CS 225, CS 128 is open to all, but CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: CS 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirements of CS 233 and CS 241 to the student's choice or (CS 233 and CS 241) or (CS 240 and two 400-level CS courses (after CS 403, not including CS 491)). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the requirement

Justification: This option is already a possibility in several of the CS+X degree programs and it allows students in Stat&CS to customize their program to better focus on the aspects of CS that impact the areas of Statistics most in line with their interests.

3) Change the linear algebra requirement from MATH 415 to (Math 415 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in Stat&CS should have the option of a stronger linear algebra class with stronger ties to programming.

---Elsa

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Elsa L Gunter
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University of Illinois at Urbana - Champaign

--
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Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Proposal for revised curricula (degree, major, concentration, minor)

Submit completed proposals via email to Associate Dean Kelly Ritter (ritterk@illinois.edu). Please obtain Executive Officer and School Director (if applicable) approval via email and forward with the proposal to LAS.

Proposal Title: Proposal to revise the curriculum of the Statistics & Computer Science major degree in LAS.

Proposed effective date: Fall 2021

Sponsor(s): Elsa Gunter, Director of Undergraduate Programs, Department of Computer Science, egunter@illinois.edu

David Unger, Director of Undergraduate Programs, Department of Statistics, dunger@illinois.edu

College contact: Kelly Ritter, Associate Dean for Curricula and Academic Policy, College of Liberal Arts and Sciences, ritterk@illinois.edu

PROGRAM DESCRIPTION and JUSTIFICATION

1) **Provide a brief description but concise description of your proposal.** For example, if proposing revisions to a curriculum, state specifically what is changing. Where applicable, note whether stated program changes include additional requirements in the form of prerequisite courses. Requests for curriculum revisions must be accompanied by a table which clearly outlines the current requirements and the proposed revisions. This information may be submitted as an appendix. See Appendix A for an example. Please provide pertinent information only.

The proposed revisions to the curriculum of the Statistics & Computer Science major degree in LAS are as follows. Please note that items 1, 2, and 3 match revisions being proposed for the "CS + X" set of major programs.

1. **A revision to the Computer Science Introductory Sequence:** The revision includes replacing CS 125 (4 hours) and CS 126 (3 hours) with three new courses – CS 124: Intro to Computer Science I (3 hours), CS 128: Intro to Computer Science II (3 hours), and a one-hour code-review course, CS 222: Software Design Lab (1 hour). CS 128 takes about two-thirds of the old CS 126 curriculum and receives an hour from the old CS 125 topics. CS 128 (unlike CS 126) becomes available to students in all majors. CS 222 removes the code reviews from the old CS 126 and can be taken later in the curriculum. CS 125 and CS 126 would be discontinued when no longer essential for students needing to retake them, e.g. for grade replacement.

2. **The addition of an alternate Computer Architecture/System Programming option:** This will change the requirements of CS 233 and CS 241 to the student's choice of (CS 233 and CS 241) or (CS 240 and two 400-level CS courses). If the student chooses the option to use CS 240, the two 400-level CS courses are in addition to the Computational Application Electives requirement. The two 400-level CS courses must be numbered above CS 403 and must not include CS 491.

3. **Adding new Linear Algebra options:** The newly created MATH 257: Computational Linear Algebra will be added to the list of approved linear algebra course options which currently includes only MATH 415.

4. **A revision to the Statistics Introductory Sequence:** The current Group I requires completion of STAT 200, STAT 212, or CS 361. The newly created STAT 107 will be added to the list. CS 361 will be removed from the list. The remaining courses will no longer be identified as Group I.

5. **A revision to the Probability and Statistics Sequence:** The current Probability and Statistics Foundation core includes STAT 400, 410, and 428. STAT 425 and 426 (Statistical Modeling I and II) will be added to this statistical core. STAT 428 will be relocated to the group of Statistics elective applied courses.

6. **Relabeling the elective groups for greater clarity and organization:**
   - The current Group II: Mathematical Analysis and Modeling will be removed from the program.

   - The current Group IV: Statistical Analysis and Modeling includes STAT 420, 425, 426, and 448. The revision removes STAT 420, moves STAT 425 and 426 to a core sequence, retains STAT 448, and adds several more course options. STAT 428 currently exists as a required course but will now join this group. The updated group will contain STAT 428, 431, 432, 440, and 448. This group will be relabeled as Statistical Application Electives.

   - The current Group III: Computational Application Areas will contain the same list of courses, except for the removal of STAT 385. This group will be relabeled as Computational Application Electives.

2) **Provide a justification of the program**, including how your unit decided to create this program, highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates, when appropriate.

As the practice and teaching of both the fields of Statistics and Computer Science have grown and evolved over the past few years, so have our respective curricula. This is particularly true in the area of data science, where applications in Statistics and Computer Science (Stat&CS) intersect. The revisions in this document are the results of a collaboration within and between our departments to assess which courses will benefit our students the most, to involve fewer STAT and CS courses that are less relevant to data science, and to incorporate more that are.

The justifications which follow each address a revision item that appeared in the previous section.

1. **A revision to the Computer Science Introductory Sequence:** Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except those in ECE), including students in Computer Science majors, students wanting to transfer into Computer Science majors, students doing minors and students needing CS 225 to complete a concentration. Adding CS 222 and removing CS 242 eliminates the attempt to distinguish between how freshmen and transfer students take the code-review class.

2. **The addition of an alternate Computer Architecture/System programming option:** This option is already a possibility in several of the CS+X degree programs outside of the LAS programs, and it allows students in Stat&CS to customize their program to better focus on the aspects of CS that impact the Statistics areas most in line with their interests.

3. **Adding new Linear Algebra options:** MATH 257 is designed to be a replacement for MATH 415: Applied Linear Algebra with essentially the theoretical content of MATH 415, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. The more rigorous MATH 415 will continue to be allowed for students to take in order to better prepare for STAT and CS electives that require a stronger foundation in linear algebra.

4. **A revision to the Statistics Introductory Sequence:** STAT 107: Data Science Discovery is just the first in a sequence of new STAT courses aimed at bringing data science skills and tools to more of the student population. It is only fitting that it be added as a gateway into the Stat&CS major.

   With the inclusion of two STAT courses to the require core (Item 5 below), CS 361 no longer exists as a viable choice for students in STAT&CS. While a worthy complementary course in CS+X programs, CS 361 presents a redundancy with our Statistical Modeling sequence (STAT 425+426). Further, its prerequisites of Calc I and linear algebra (and thus inherently Calc II and Calc III) are a bit heavier than the others offered as an introductory course for first year students. Thus, we propose CS 361 be removed as an option.

5. **A revision to the Probability and Statistics Sequence:** The relocation of both STAT 425 and STAT 426 from optional electives to required core courses will bring the Stat&CS curriculum in alignment with the Statistics major. The current Stat&CS major plan of study does not have a requirement for advanced statistical modeling, but the revision

will remedy this omission. The removal of CS 361 (Item 4) addresses a duplication that would occur if all three of these courses remained.

6. **Relabeling the elective groups for greater clarity and organization:**
   - The current Group II: Mathematical Analysis and Modeling will be removed from the program. The removal of Group II is tied to the revision to the Probability and Statistics Sequence (Item 5 above). The revision aims to refocus the program on areas where more regularly utilized methods in computational analysis take place in today's workforce. Further, this more pragmatic curriculum will maintain stronger ties to the CS courses in the program. For those pursuing a post-baccalaureate education, our students will be as strong or stronger candidates for MS and PhD programs in Statistics under the revision, even with the removal of this group. Logistically speaking, the absence of this more abstract set of courses (i.e., the former Group II) and their credit hour contribution to the program provides the breathing room for the addition of STAT 426 as a required course to align with the Statistics Major and without necessitating a change in total credit hours.
   - The current Group IV: Statistical Analysis and Modeling is being updated and renamed. STAT 425 and 426 are moving from the Group IV electives to the required core as described in Item 5. We are removing STAT 420 as it is a less rigorous redundancy to STAT 425+426. It will be a more suitable course intended for our Minor students and non-major graduates. STAT 448 will remain as an elective, but it will be joined by STAT 428 (which was formerly required) and others. As the application of statistics has branched out, so have our course offerings. Along with STAT 428, a newer crop of courses including STAT 431, 432, 440, and 448 offer our students greater variety to add to their foundational skills in computational statistics. For better clarity for students, this group will be relabeled as <u>Statistical Application Electives</u>.

   - The current Group III: Computational Application Areas will contain the same list of courses, except for the removal of STAT 385. STAT 385 is somewhat of a redundancy to several CS courses as it contains a variety of Computer Science topics related to statistical analysis. These topics are also found throughout the core of the CS-side of the curriculum. For students in the Stat&CS program, we feel it will be a better experience if they get those topics directly from CS. As with the other electives, for clarity this group will be relabeled as <u>Computational Application Electives</u>.

Our graduates in Stat&CS are moving into careers where skills in advanced modeling and data science are not only encouraged but required. It is only appropriate that the curriculum be updated to reflect this.

3) In addition, please provide an answer as to how your degree (120 hours of coursework) will satisfy this requirement: IBHE requires that all degree programs contain at least 40 credit hours in upper division courses. Upper division courses have been described as 300- and 400- level coursework and some 200-level courses in which multiple prerequisites are required.

This proposed revision does not subtract any credit hours from the major plan of study, nor in the specific area of upper division courses. Thus, the program will maintain the same number of upper division credit hours. This proposed revision only serves to align the foundations of the Stat and Stat&CS programs, to coordinate the CS requirements found in

the Stat&CS and CS+X programs, and to provide more options for students to satisfy advanced requirements in Statistics.

Is this program interdisciplinary? Yes. The Stat&CS major is an interdisciplinary program resulting from a partnership between the Department of Statistics and the Department of Computer Science.

If a proposal for a concentration-

will you admit to the concentration directly? NA

is a concentration required for graduation? NA

Will specialized accreditation be sought for this program? No specialized accreditation is being sought.

ADMISSION REQUIREMENTS

1) Desired admissions term: *For LAS units, a fall semester effective term for all curricula will be requested, please indicate the proposed year*

Fall, 2021

2) Provide a brief narrative description of the admission requirements for this program. Where relevant, include information about licensure requirements, student background checks, GRE and TOEFL scores, and admission requirements for transfer students. (degrees, majors, concentrations ONLY)

Not Applicable for this revision as there are no proposed changes to Admission Requirements

3) Describe how critical academic functions such as admissions and student advising are managed.

First-Year student (i.e., "freshman") admissions are primarily determined by the College of Liberal Arts & Sciences (LAS) and Office of Undergraduate Admissions (OUA). There is some input from our department but Computer Science provides most of the guidance to balance our enrollment with fellow programs in Computer Science (ENG), Mathematics & Computer Science (LAS), and the CS+X majors. Students who wish to transfer into Stat&CS must successfully complete a series of introductory courses in both departments prior to submitting an application portfolio which includes essay writing.

Our departments share in the responsibility of mentoring and advising students in Stat&CS. Readiness for entering the program, continued progress in the major, and preparation for post-baccalaureate opportunities (such as graduate school or employment) are monitored by a team of full-time academic and career advisors, faculty, and program directors within our two Departments.

ENROLLMENT

1) Describe how this revision will impact enrollment and degrees awarded.

We anticipate no discernible impact on enrollment and degrees awarded resulting from this revision. If anything, the proposed revision would have a positive impact on enrollment and degrees awarded. Computer Science at Illinois continues to be a national leader, and our undergraduate program in Statistics has grown rapidly in the past five years. Due to hiring limitations, we were unable to provide a supply of courses to meet the demand from outside our program. With many new faculty hires and innovative creation of new courses in Statistics of late, not only are we able to meet the demand, but we can offer a variety of dynamic new courses. With the revision, our majors will have a more structured and clearer path toward degree completion.

2) Estimated Annual Number of Degrees Awarded**(degrees, majors, concentrations ONLY)**

Year 1: 90 – The actual number might be somewhat larger due to students who planned to graduate in AY21, but will defer/be delayed until AY22 due to COVID-19.

Year 5 (or when fully implemented): 100 - There many similar programs on campus with the offerings of Math&CS, CS+X, and the emerging Data Science initiatives we partner with. We anticipate a modest rise, but our students may spread to related areas of Stat and CS as well.

3) What is the matriculation term for this program? Fall

4) What is the typical time to completion of this program? 4 years

5) What are the minimum Total Credit Hours required for this program? 120 credit hours

6) Delivery Method, what is the program's primary delivery method? Face to Face

---

5) MINORS ONLY: NOT APPLICABLE

Will the department limit enrollment in the minor?

Describe how the department will monitor admission to/enrollment in the minor.

Are there any prerequisites for the proposed minor?

Other than certification via the students' degree audits, is there any additional planned mechanism to award/honor successful completion of the minor? If yes, please describe.

BUDGET

1) Please describe any budgetary implications for this revision- addressing applicable personnel, facilities, technology and supply costs.

Computer Science: This revision constitutes a redistribution of existing instructional resources but should not cause a significant change in applicable personnel, technology, and supply costs. Allowing CS 128 to be taken by non-majors, as well as majors, will

increase the enrollment over and above that of CS 126 and CS 242 and may have a small impact on scheduling (requiring a larger classroom or additional lectures) but this will be partially offset by eliminating redundancies (e.g., the need to teach both CS 126 and CS 242). The need for additional Teaching Assistants in CS 128 in contrast to CS 126 and CS 242 combined, due to outside enrollment now being allowed, will be offset by the revenue generated by the additional income for the additional IUs.

Statistics: This is a revision of an existing degree program, and for the most part involves only a shift in enrollments of courses currently offered within Statistics. In particular, we will have to increase the availability of the now-required STAT 426, but that is offset by the relocation of STAT 428 from required to elective.

2) Will the revision require staffing (faculty, advisors, etc.) beyond what is currently available? If yes, please describe.

No.

3) Please provide any additional budget information needed to effectively evaluate the proposal.

Not Applicable

RESOURCE IMPLICATIONS

1) Facilities- Will the program require new or additional facilities or significant improvements to already existing facilities? If yes, please outline the specific need and Year 1 and Year 5 cost.

No.

2) Technology- Will the program need additional technology beyond what is currently available for the unit? If yes, please outline the specific need and Year 1 and Year 5 cost.

There is no expected impact beyond the demand that already arises from current Stat&CS students.

3) Non-Technical Resources- Will the program require additional supplies, services or equipment (non-technical)? If yes, please outline the specific need and Year 1 and Year 5 cost.

No.

RESOURCES

1) Faculty Resources: Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

Computer Science: No significant changes anticipated. As mentioned above, allowing CS 128 to be taken by non-majors, as well as majors, will increase the enrollment over and above that of CS 126 and CS 242 and may have a small impact on scheduling (requiring a larger classroom or additional lectures) but this will be partially offset by eliminating redundancies (e.g., the need to teach both CS 126 and CS 242).

Statistics: Thanks to a recent wave of successful hires for faculty, advising staff, and support staff, Statistics currently has the necessary staffing for the STAT courses involved.

2) Library Resources: Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

There is no expected impact on the University Library. The new and revised courses involved in this revision use common online resources, so we do not foresee any discernible impact on the University's Library resources, collections, and services.

3) Instructional Resources: Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change? If yes, please describe.

No.

4) Does this new program/proposed change result in the replacement of another program? If yes, please specify the program.

No.

5) Does the program include any required or recommended subjects that are offered by other departments? If yes, please list the courses. Explain how these additional courses will be used by the program and provide letters of support from the departments.

Yes. The proposed revisions were drafted in collaboration as our two units jointly support this program.

The program will also continue to include the Calculus sequence of MATH 221, 231, and 241 as it always has. The revisions include the addition of MATH 257, which the Department of Mathematics has created to introduce a more programmatic approach to linear algebra for many non-Mathematics majors.

FINANCIAL RESOURCES

1) How does the unit intend to financially support this proposal?

There is no impact on the already existing arrangements that support the Stat&CS program financially. This is a revision of an existing degree program, and for the most part involves only a shift in enrollments of courses taken within the units already.

2) Will the unit need to seek campus or other external resources? If yes, please provide a summary of the sources and an indication of the approved support.

No.

3) Are you seeking a change in the tuition rate or differential for this program?

There are no proposed changes to the existing tuition rate.

4) Is this program requesting self-supporting status? (degrees, majors and concentrations ONLY)? If yes, please explain.

No.

PROGRAM REGULATION

1) **Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable.**
Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning.

Computer Science: In order to track student progress in achieving the student outcomes of the CS component of the Stat&CS program, the Department of Computer Science has identified a set of "core courses" that ensure student outcomes are being reached. These include the following courses that all students must take: CS 124, CS 128, CS 173, CS 225, CS 222, One of 240 or (CS 233 and CS 241), CS 357, CS 374, and CS 421. The Department of Computer Science tracks, on a rolling three year basis, the student attainment of the Learning Objectives of these core courses and assesses their contributions to the Student Outcomes used for all students in CS courses.

Statistics: We will continue to monitor Student Learning Outcomes for this program as outlined in our Assessment Plan filed with the Provost's Office. In fact, this proposal is an outcome of that effort. Through student performance, student and industry survey, and evaluation of emerging trends in our field, the proposed revisions address opportunities to improve student learning with our BS Statistics program.

2) Is the career/profession for graduates of this program regulated by the State of Illinois? If yes, please describe.

No.

ACADEMIC CATALOG ENTRY

1) All proposals must submit the major requirements (courses, hours) for the proposed curricula. Please see the University of Illinois Academic Catalog- http://catalog.illinois.edu/ for your unit for an example of the entry.

The entry may remain unchanged. It currently reads as follows.

This major is sponsored jointly by the Departments of Statistics and Computer Science. The Statistics and Computer Science major is designed for students who would like a strong foundation in computer science, coupled with significant advanced coursework in

statistics. The major prepares students for professional or graduate work in statistics and computer science, and for applications of computing in which knowledge of statistics is particularly important, such as data mining and machine learning.

For the degree of Bachelor of Science in Liberal Arts & Sciences Major in Statistics & Computer Science

Departmental distinction: To graduate with distinction requires a specified minimum grade point average in all Computer Science, Statistics, and Mathematics courses listed below. A GPA of 3.25 is required for Distinction, 3.5 for High Distinction, and 3.75 for Highest Distinction.

General education: Students must complete the Campus General Education requirements including the campus general education language requirement.

Minimum required major and supporting course work: Normally equates to 68-72 hours. At least 12 hours of 300- and 400-level courses must be taken on this campus.

Minimum hours required for graduation: 120 hours.

2) Include a comparative table of the current and proposed requirements.

Current curricula and proposed revisions are listed below. Additions to the program are highlighted in yellow. The updates of courses that are staying in the major but moving from optional elective to required core (or vice versa) are highlight in green. Those in green will appear in both the Current and Proposed columns. Courses being removed from the program are highlighted in blue.

Comparative Table of Proposed Changes

Current Requirements	Current Hours	Proposed Requirements	Proposed Hours
CS 100: Freshman Orientation (recommended)	0-1	[SAME]	0-1
Required Mathematical Foundation	**14-15**	**Mathematical Foundation**	**14-15**
Calculus through MATH 241: Calculus III	11-12	[SAME]	11-12
MATH 415: Applied Linear Algebra	3	MATH 257: Linear Algebra with Computational Applications, or MATH 415: Applied Linear Algebra	3
Required Computer Science Foundation	**32**	**Computer Science Foundation**	**32-33**
---	---	CS 124: Introduction to Computer Science I	3
CS 125: Intro to Computer Science	4	---	---
CS 126: Software Design Studio (or CS 242)	3	---	---

---	---	CS 128: Introduction to Computer Science II	3
CS 173: Discrete Structures	3	[SAME]	3
---	---	CS 222: Software Design Studio	1
CS 225: Data Structures	4	[SAME]	4
CS 233: Computer Architecture (4) and CS 241: System Programming (4)	8	Choose from one of the following course sets: CS 233: Computer Architecture (4) and CS 241: System Programming (4) ...OR... CS 240: Introduction to Computer Systems (3) and two CS 400-level electives numbered above CS 403 and not including CS 491 (6)	8-9
CS 357: Numerical Methods I	3	[SAME]	3
CS 374: Introduction to Algorithms & Models of Computation	4	[SAME]	4
CS 421: Programming Languages & Compilers	3	[SAME]	3
Required Probability and Statistics Foundation	**10**	**Probability and Statistics Foundation**	**16-17**
[Current Group I; see below]	---	STAT 107: Data Science Discovery, or STAT 200: Statistical Analysis, or STAT 212: Biostatistics	3-4
STAT 400: Statistics & Probability I	4	[SAME]	4
STAT 410: Statistics & Probability II	3	[SAME]	3
STAT 428: Statistical Computing	3	---	---
---	---	STAT 425: Applied Regression and Design	3
---	---	STAT 426: Sampling and Categorical Data	3
At least <u>four</u> other statistics, computer science, or mathematics courses, with at least one chosen from each of the following groups:	**12**		
Group I: Statistical Methods	**(3)**	**[GROUP I REMOVED]**	**---**
STAT 200: Statistical Analysis		[Relocated above]	
STAT 212: Biostatistics		[Relocated above]	
CS 361: Probability & Statistics for Computer Science		---	
Group II: Mathematical Analysis and Modeling	**(3)**	**[GROUP II REMOVED]**	**---**
MATH 347: Fundamental Mathematics		---	
MATH 441: Differential Equations		---	
MATH 444: Elementary Real Analysis		---	
MATH 447: Real Variables		---	
Group IV: Statistical Analysis and Modeling	**(3)**	**[RELABEL AS...] Statistical Application Electives (Choose at least one.)**	**3**
STAT 420: Methods of Applied Statistics		---	

STAT 425: Applied Regression and Design		---	
STAT 426: Sampling and Categorical Data		---	
---		STAT 428: Statistical Computing	
---		STAT 431: Applied Bayesian Analysis	
---		STAT 432: Basics of Statistical Learning	
---		STAT 434: Survival Analysis	
STAT 448: Advanced Data Analysis		[SAME]	
Group III: Computational Application Areas	**(3)**	**[RELABEL AS…] Computational Application Electives (Choose at least one.)**	**3**
STAT 385: Statistics Programming Methods		---	
CS 410: Text Information Systems		[SAME]	
CS 411: Database Systems		[SAME]	
CS 412: Introduction to Data Mining		[SAME]	
CS 446: Machine Learning		[SAME]	
CS 481: Advanced Topics in Stochastic Processes & Applications		[SAME]	
CS 482: Simulation		[SAME]	
TOTAL	**68-70**		**68-72**

Mock-up of how the proposed revisions would possibly appear in the Catalog.

Departmental distinction: To graduate with distinction requires a specified minimum grade point average in all Computer Science, Statistics, and Mathematics courses listed below. A GPA of 3.25 is required for Distinction, 3.5 for High Distinction, and 3.75 for Highest Distinction.

General education: Students must complete the Campus General Education requirements including the campus general education language requirement.

Minimum required major and supporting course work: Normally equates to 68-72 hours. At least 12 hours of 300- and 400-level courses must be taken on this campus.

Minimum hours required for graduation: 120 hours

CS 100	Freshman Orientation (recommended)	0-1
Mathematical Foundation:		14-15
Calculus through MATH 241 - Calculus III		
Choose one of the following. MATH 257 or MATH 415	Linear Algebra with Computational Apps Applied Linear Algebra	

Computer Science Foundation:		32-33
CS 124	Introduction to Computer Science I	
CS 128	Introduction to Computer Science II	
CS 173	Discrete Structures	
CS 222	Software Design Studio	
CS 225	Data Structures	
Choose from one of the following course sets.		
CS 233 and CS 241 …..OR….. CS 240 and two CS 400-level electives numbered above CS 403 and not including CS 491	Computer Architecture, System Programming Introduction to Computer Systems	
CS 357	Numerical Methods I	
CS 374	Introduction to Algorithms & Models of Computation	
CS 421	Programming Languages & Compilers	
Probability and Statistics Foundation:		16-17
Choose one of the following. STAT 107, STAT 200, or STAT 212	 Data Science Discovery Statistical Analysis Biostatistics	
STAT 400	Statistics and Probability I	
STAT 410	Statistics and Probability II	
STAT 425	Statistical Modeling I	
STAT 426	Statistical Modeling II	
Statistical Applications Elective:		3
Choose at least one course from the following.		
STAT 428	Statistical Computing	
STAT 431	Applied Bayesian Analysis	
STAT 432	Basics of Statistical Learning	
STAT 434	Survival Analysis	
Computational Application Elective:		3
Choose at least one course from the following.		
CS 410	Text Information Systems	
CS 411	Database Systems	

CS 412	Introduction to Data Mining
CS 446	Machine Learning
CS 481	Advanced Topics in Stochastic Processes & Applications
CS 482	Simulation

CS + Animal Sciences
10KL5864BS: Computer Science & Animal Sciences, BS
JP: 10KL5890BS & 1PKS5890MANS: JP: Computer Science & Animal Sciences, BS & Animal Science, MANSC
JP: 10KL5890BS & 1PKS5890MANS(MANU): JP: Computer Science & Animal Sciences, BS & Animal Science, MANSC

Dear Anna,

Thank you very much. I'll send you another email to get the conversation about getting it all in CIM.

---Elsa

On 3/23/21 9:11 AM, Dilger, Anna Carol wrote:

Elsa,

ANSC is in support of these changes. Please let me know what you need me to do to process these through the CIM.

Anna

Anna Dilger, PhD
Associate Professor of Muscle Biology and Meat Science

Coordinator, Undergraduate Programs
Department of Animal Sciences, University of Illinois
205A Meat Science Lab
1503 S. Maryland Drive, Urbana, Illinois 61801
Office: 217-333-3986
Cell: 217-979-1044

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Friday, March 19, 2021 5:25 AM
To: David J Miller <djmille60@gmail.com>
Cc: Dilger, Anna Carol <adilger2@illinois.edu>; Johnson, Rodney W <rwjohn@illinois.edu>
Subject: Re: Changes to curricula?

Dear Anna Dilger,

We last corresponded on September 11, 2020 at 9:24pm. Since then, there were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class.

I need a clear email stating whether Animal Sciences accept the following curriculum modification for the CS+Animal Sciences programs:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces the prerequisite of CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about 2/3 of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students in the class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Animal Sciences should have the option of a stronger linear algebra class with stronger ties to programming.

3) Change the restriction on the range of 400-level CS courses available to students choosing the CS 240 option to (above CS 403, not including CS 421 or CS 491).

Justification: The CS courses CS 400, CS 401, CS 402 and CS 403 are for students in the iCAN program preparing to enter the CS MCS degree. These courses are largely duplicative of content found in courses already in this program, and they are not intended for students already in CS programs. CS 421 is already a program requirement, and this is o make explicit that it can not be used for "double dipping" here.

I have attached a pdf version of the changes to help you see what is being suggested. Red are the new, and green is old and new combined.

If you are OK with the above, we need a clear letter of approval (email should suffice) from Animal Sciences as soon as reasonably possible. We should also discuss the specifics of how this all gets entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Mathematical Foundations (fulfills Quantitative Reasoning I & II)		
CS 361	Probability & Statistics for Computer Science	
MATH 220 or MATH 221	Calculus Calculus I	
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra 2 or 3
MATH 231	Calculus II	
Computer Sciences Core		
CS 100	Freshman Orientation	
~~CS 125~~	~~Intro to Computer Science~~	CS 124 Intro to Comouter Science I 3 CS 128 Intro to Computer Science II 3 CS 222 Software Design Studio 1
~~CS 126~~	~~Software Design Studio~~	
CS 173	Discrete Structures	
CS 225	Data Structures	
CS 374	Introduction to Algorithms & Models of Computation	
CS 357 or CS 421	Numerical Methods I Programming Languages & Compilers	
Computer Science Technical Track (two options)		
CS 233 & CS 241	Computer Architecture and System Programming	
OR		
CS 240	Introduction to Computer Systems	
& Two CS 400	Any two (2) 400-level CS courses ~~except CS 491~~	above CS 403, excluding CS 421 and CS 491
Animal Sciences Core		

CS + Crop Sciences
10KL5623BS: Computer Science + Crop Sciences, BS
JP:10KL5903BS & 10KS5903MS: JP: Computer Science + Crop Sciences, BS & Crop Sciences, MS

Thank you very much, particularly for your promptness.

---Elsa

On 3/15/21 10:53 AM, Rayburn, A Lane wrote:
Hi Elsa

Crop Sciences approves the changes to the CS curriculum.

Sincerely

Dr. A. Lane Rayburn
Professor of Cytogenetics
Director of Undergraduate Programs
Department of Crop Sciences
University of Illinois
AE-120 Turner Hall, 1102 S. Goodwin Ave
Urbana, IL 61801
Telephone - 217 333-4374.
http:// https://cropsciences.illinois.edu/people/profile/arayburn

From: Scott Bartlett <sbartlet@illinois.edu>
Date: Monday, March 15, 2021 at 8:36 AM
To: "Rayburn_A.L." <arayburn@illinois.edu>
Cc: "Gunter, Elsa" <egunter@illinois.edu>, "Herzog, Stephen M" <smherzog@illinois.edu>
Subject: RE: [cs+x] Changes to curricula?

Hello Lane,

Computer Science needs an official letter stating that CSPC is okay with the changes to the CS curriculum (see email below). These are the CS+CPSC major changes that Steve Herzog (CS) and I worked on and already submitted through the CIM. I have put the changes into the advising checklist that I use with students (see attached). Please submit the letter to Elsa (copy me and Steve) as soon as possible.

Thank you!

--Scott

SCOTT BARTLETT
Academic Advisor & Program Manager

University of Illinois at Urbana-Champaign
College of Agricultural, Consumer and Environmental Sciences
Department of Crop Sciences
AE-116 Turner Hall | MC-046 | 1102 South Goodwin Avenue | Urbana, IL 61801
217.244.7930 | sbartlet@illinois.edu
cropsciences.illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Monday, March 15, 2021 2:14 AM
To: Bartlett, Scott E <sbartlet@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Re: [cs+x] Changes to curricula?

Dear Scott,

I need a clear email stating whether you accept the following curriculum modification for the CS+CPSC program:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption

that all students know how to program in C++, and assures all students int he class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Add MATH 257 as an option for linear algebra, in addition to the MATH 225.

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+CPSC should have the option of a stronger linear algebra class with stronger ties to programming.

If you are OK with the above, we need a clear letter of approval from CPSC as soon as reasonably possible. We should also discuss the specifics of how this all get entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa
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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Computer Science Core					**22**
CS 100	Freshman Orientation (recommended)				1
~~CS 125~~	~~Intro to Computer Science~~	CS 124	Intro to Comouter Science I	3	4
~~CS 126~~	~~Software Design Studio~~	CS 128	Intro to Computer Science II	3	3
		CS 222	Software Design Studio	1	
CS 173	Discrete Structures				3
CS 225	Data Structures				4
CS 374	Introduction to Algorithms & Models of Computation				4
CS 421	Programming Languages & Compilers				3
Computer Science Technical Track					**8-11**
Choose from the following options:					
CS 233 & CS 241	Computer Architecture and System Programming				
OR					
CS 240	Introduction to Computer Systems				
& Two CS 4XX	Any two (2) 400-level CS courses except CS 491				
Mathematical Foundations (fulfills Quantitative Reasoning I and II)					**12-13**
CS 361	Probability & Statistics for Computer Science				3
MATH 220 or MATH 221	Calculus Calculus I				4-5
MATH 225	Introductory Matrix Theory	or MATH 257	Intro to Linear Algebra	2	or 3
MATH 231	Calculus II				3
Crop Sciences Core					**16**

CS + Music

10KR5639BS: Computer Science + Music, BS

Office of the Associate Director
School of Music
1114 W. Nevada Street
University of Illinois Urbana-Champaign
Urbana, Illinois 61801
Email: moorhouz@illinois.edu

March 25, 2021

Dr. Elsa Gunter
Department of Computer Science
2112 Siebel Center for Computer Science
Grainger College of Engineering
University of Illinois

Dear Elsa:

Thank you for reaching out to the School of Music to clarify the recent changes to the Computer Science curriculum. With our CS + Music degree, we understand our curriculum changes to be:

1) Removing CS 125 (4 cr) and CS 126 (3 cr) and replacing these two courses with CS 124 (3 cr), CS 128 (3 cr), and CS 222 (1 cr);

2) Allowing CS 240 and two 400-level CS courses (above CS 403, not including CS 491) to serve as an option to replace CS 233 and CS 241; and

3) Adding MATH 257 as an optional replacement for MATH 225

We understand we will need to go through a program revision in CIM-P to incorporate these modifications to our degree, and since there are no alterations to our minimum number of overall credit hours, we support these changes.

Thank you again for reaching out to us directly with this information.

Sincerely,

Linda R. Moorhouse

Linda R. Moorhouse, D.M.A.
Professor and Associate Director
Director of Undergraduate Studies
School of Music

CS + Music Core Coursework

Music			
MUS 105	Computation and Music I		2
MUS 205	Computation and Music II		2
MUS 299	Thesis/Adv UG Honors in Music		1 or 2
MUS 404 or MUS 448	Contemp Compos Techniques Computer Music		3
MUS 407	Elect Music Techniques I		3
MUS 409	Elec Music Techniques II		2
Advanced Music Theory			3
Advanced Musicology			3
Senior Project or Senior Thesis			
Computer Science			
~~CS 125~~	~~Intro to Computer Science I~~	CS 124 Intro to Comouter Science I 3 CS 128 Intro to Computer Science II 3 CS 222 Software Design Studio 1	~~4~~
~~CS 126~~	~~Software Design Studio~~		~~1~~
CS 173	Discrete Structures		3
CS 225	Data Structures [3]		4
CS 233	Computer Architecture	or CS 240 Introduction to Computer Systems 3 Two 400-level CS courses 6-8 (above 403, not including491)	4
CS 241	System Programming		4
CS 361	Probability & Statistics for Computer Science [4]		3
CS 374	Introduction to Algorithms & Models of Computation		4
CS 421	Programming Languages & Compilers		3
CS 498	Special Topics (Audio Signal Processing)		3
Engineering			
ECE 402	Electronic Music Synthesis		3
Math			
MATH 220 or MATH 221	Calculus [5] Calculus I		4 or 5
MATH 231	Calculus II		3
MATH 225	Introductory Matrix Theory	or MATH 257 Intro to Linear Algebra 2	or 3
Total Hours			~~66~~ ~~68~~

Total 8-11

66 - 72

[1] Completion of both MUS 313 and MUS 314 meets the [illegible]

CS + Advertising
10KT5673BS: Computer Science & Advertising, BS

Dear Mike,

Thank you for the prompt reply and for keeping me abreast of the situation.

---Elsa

On 3/26/21 4:50 PM, Yao, Mike wrote:
Hi Elsa,

Thank you for the suggestions. We have no problem with the CS proposed changes.

As you suggested, we work on a separate approval process through the pipeline next year targeting effective data for Fall 2022. I am cc'ing Jason Chambers, Associate Head of Advertising, Ewa Maslowska, CS+ADV program coordinator, and Katie Clark on this email.

Thanks, and have a nice weekend.

Mike

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Friday, March 26, 2021 4:24 PM
To: Yao, Mike <mzyao@illinois.edu>
Subject: Re: Changes to curricula?

Dear Mike,

First, if you have no problem with our changes, please send me an email to that effect, and include that you are making major revisions on your side. CS-ENG is holding up the line for all the CS+X, so getting us unstuck from the Suez Canal can only help.

Second you probably have to go to the IBHE and so aren't going through for Fall 2021. If you agree with this assessment, since you haven't started entering into CIM yet, you should confer with your College, but we should put this revision in separate from yours and try to get it through as fast as possible so

that it can "come back to rest" and you can enter all your stuff and get back in the queue. If you don't need to, or there is a threat that waiting for your CIM program to come back to rest, or there is a threat that you will miss the boat to IBHE for this season, then we should scramble as fast as we can, probably this weekend (ow, yes at the crunch point of the craziest course scheduling period yet), and get all the pieces in and get it to EdPol as fast as possible. Then if it can't go into effect until Fall 2022, we allow the CS+Adv students to substitute CS124-CS128-CS222 for CS125-CS126. If necessary, CS runs CS 125 and CS 126 restricted to CS+Adv students in addition to those needing Grade Replacement.

Does that sound like a workable plan?

---Elsa

On 3/26/21 1:15 PM, Yao, Mike wrote:
Hi Elsa,

Advertising is going through a curriculum revision. We just got the final campus approval to add 12 units to the major requirement of the BS in Advertising degree. As a result, we may have several course-number changes and new courses in the coming academic year. These changes may affect the CS+ADV curriculum.

More immediately, we would like to add a couple of alternative courses to the CS+ADV curriculum so that the students can benefit from some of our elective courses in the digital and computational advertising sequence.

I don't want these changes to slow down your proposal. Can you suggest the best way to move forward? We don't have any major issues with the proposed changes in the CS courses.

Mike

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Friday, March 26, 2021 12:47 PM
To: Yao, Mike <mzyao@illinois.edu>; Clark, Katie <keclark@illinois.edu>
Cc: Tucker Zwilling, Megan <megtuck@illinois.edu>; Wolff, Amy <aewolf@illinois.edu>; Mulvaney, Carrie A <carriem@illinois.edu>; Hagman, Jacob C <jchagman@illinois.edu>; Venable, Lissette <lchaid2@illinois.edu>; Herzog, Stephen M <smherzog@illinois.edu>; Sundaram, Hari <hs1@illinois.edu>
Subject: Re: Changes to curricula?

Dear Mike,

I think I may have confused our last round of communication, and I apologize for that.

Could you please give my an update on the state of the faculty review of the proposed revisions to the CS+Advertising program?

---Elsa

On 3/15/21 11:59 AM, Yao, Mike wrote:
Hi Elsa,

Thank you for raising this matter to our attention. I will discuss this change with my faculty and get back to you as soon as possible.

Mike

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Monday, March 15, 2021 11:52 AM
To: Clark, Katie <keclark@illinois.edu>
Cc: Tucker Zwilling, Megan <megtuck@illinois.edu>; Wolff, Amy <aewolf@illinois.edu>; Mulvaney, Carrie A <carriem@illinois.edu>; Hagman, Jacob C <jchagman@illinois.edu>; Venable, Lissette <lchaid2@illinois.edu>; Yao, Mike <mzyao@illinois.edu>; Herzog, Stephen M <smherzog@illinois.edu>; Sundaram, Hari <hs1@illinois.edu>
Subject: Re: Changes to curricula?

Dear Katie, Megan, Mike, Amy, Carrie, Jacob, Hari and Lissette,

There were some changes to how we were adjusting the initial programming sequence because the way we were going to handle revising CS 125 was considered inappropriate for purposes of grade replacement and we had to create a fully new class.

I need a clear email stating whether you accept the following curriculum modification for the CS+Advertising program:

1) (CS 125(4cr) + CS 126(3cr)) -> (CS 124(3cr) + CS 128(3cr) + CS 222(1cr)), CS 242(3cr) -> CS 222(1cr), CS 225 replaces CS 125 with (CS 126 or CS 128) as the programming prerequisite, CS 128 is open to all, CS 222 is restricted to &CS+ programs. The programming prerequisite for CS 173 is changed from CS 125 to (CS 124 or CS 125).

Justification: C S 128 takes about ⅔ of the old CS 126 and receives an hour from the old CS 125 topics, with the remaining topics remaining with CS 124. Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into one of the &CS+, students doing minors and students needing CS 225 to complete a concentration. It also allows CS 225 to start with an assumption that all students know how to program in C++, and assures all students int he class have a common programming background. Further, the new CS 128 will provide an extended ability for general students to increase their skills in programming and structured program design and development, but without the more specialized material in Data Structures. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the linear algebra requirement from MATH 225 to (Math 225 or Math 257).

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. Students in CS+Advertising should have the option of a stronger linear algebra class with stronger ties to programming.

I have attached a pdf version of the changes to help you see what is being suggested. Red are the new, and green is old and new.

If you are OK with the above, we need a clear letter of approval (email should suffice) from Advertising (or Media) as soon as reasonably possible. We should also discuss the specifics of how this all gets entered into CIM, assuming you are OK with it. If you are not, please let me know what the problems are.

---Elsa

On 9/15/20 8:16 AM, Clark, Katie wrote:
Hi Elsa,

Thanks for reaching out about these issues.

After discussing with the Advertising department, we are fine to change requirements to CS 128 and CS 222 instead of CS 126 and CS 242.

We would also like to follow suit with the other CS+X majors and allow students to take either MATH 225 or MATH 257.

Let me know if you need anything else from us.

Thank you,
Katie

KATIE CLARK
Senior Assistant Dean for Student Services

College of Media
18 Gregory Hall
810 S. Wright St. | M/C 477
Urbana, IL 61801
217.244.4329 | keclark@illinois.edu
media.illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Saturday, September 12, 2020 8:07 PM
To: Tucker Zwilling, Megan <megtuck@illinois.edu>; Hagman, Jacob C <jchagman@illinois.edu>; jrhogue@illinois.edu; Mulvaney, Carrie A <carriem@illinois.edu>; Venable, Lissette <lchaid2@illinois.edu>; Wolff, Amy <aewolf@illinois.edu>; Sundaram, Hari <hs1@illinois.edu>; Herzog, Stephen M <smherzog@illinois.edu>
Subject: Re: Changes to curricula?

Dear Megan, Jake, Jessica, Carrie, Lissette, Amy, Hari, and Mike,

The message below was sent to our CS+X mailing list, and CS never got a response from Advertising concerning the CS+Advertising degree. That might have been for many different reasons, such as CS 240 + 2*400-level CS courses is already the default fro CS+Advertising, so no reply was deemed necessary, or perhaps the reason was that none of you are on the CS+X list server (a reason that should be remedied). Under any circumstances, the time of doing the curriculum modification alluded to below is very much upon us, so I hope the message below did get through to Advertising somehow. But now, I need a response to those matters and one more, to make sure we are all in agreement.

The proposed changes to CS+Advertising are as follows:

1) (CS 126 -> CS 128 + CS 222) and (CS 242 -> CS 222) and CS 225 adds CS 128 as a prerequisite; CS 128 is open to all, while CS 222 is restricted to

&CS+ programs.

Justification: Replacing CS 126 with CS 128 makes the path to CS 225 uniform for all students (except ECE), including &CS+ majors, students wanting to transfer into &CS+, students doing minors and students needing CS 225 to complete a concentration. Adding CS 222 and removing CS 242 eliminates the attempt to discriminate between how freshmen and transfers take the code review class.

2) Change the requirement for Math 225 to the students choice of Math 225 or Math 257.

Comment 1: The creation of Math 257 is imminent. I believe it is designed to be a replacement for MATH 415 with essentially the theoretical content of MATH 415, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper.

Question: Is this option what Advertising wants, or should it be left as just Math 225?

Comment 2: All other CS+X programs have chosen to go with the students choice of Math 225 or Math 257. Math&CS, STAT&CS and CS-GEng are choosing just Math 257 (with Math 416 as a standard substitution). You may choose just Math 257, but that would be a strict increase int he Math requirements in your program.

Please let me know if you are OK with one, your choice for 2) and whether you are OK with our putting in the Curriculum Modification for CS+Advertising. (The registrar's office has indicated they would prefer CS do all the CS related Curriculum Modifications as a bundle all together.) It is fairly urgent that we hear form you soon.

---Elsa

4) No other changes (?)

Question: Is this correct?

On 5/4/20 4:44 PM, Elsa L. Gunter wrote:

Dear Advisors and Directors,

It has come to my attention that several of you are wanting to give students the option of CS 240 + two 400-level CS courses in place of CS 233 + CS 241. If you are wanting to do this with you degree program as a curriculum modification for students, please let me know. If you feel this is a path you wish to add to your degree program in general, we should collaborate on what that curriculum revision would entail.

In addition, CS is moving to change CS 126 into a combination of CS 128 and CS 222, details to be provided later. However, this will require curriculum revisions for all your CS+X / Y&CS programs and we need to coordinate these to include any changes you are planning on your side.

---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
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--
Elsa L Gunter

Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Computer Science Core				
~~CS 125~~	~~Intro to Computer Science~~	CS 124	Intro to Comouter Science I	3
~~CS 126~~	~~Software Design Studio~~	CS 128	Intro to Computer Science II	3
		CS 222	Software Design Studio	1
CS 173	Discrete Structures			
CS 225	Data Structures			4
CS 240	Introduction to Computer Systems			3
CS 374	Introduction to Algorithms & Models of Computation			4
CS 421	Programming Languages & Compilers			3 or 4
Computer Science Technical Electives: Two 400-level courses chosen in consultation with an advisor.				6
Mathematical Foundations (also fulfills QR I and II gen eds.)				
MATH 220 or MATH 221	Calculus I			5
MATH 231	Calculus II			3
MATH 225	Introductory Matrix Theory	or MATH 257	Intro to Linear Algebra	2 or 3
CS 361	Probability & Statistics for Computer Science			3
College of Media Foundations				

Letters of Acknowledgement for Changes to CS 225

Table of Contents

More detailed information for the treatment of CS 225 in the Math & CS, Stat & CS and CS+X programs is found in “Letters of Agreement with the CS+X Partners”

Advertising (ADV)

Dear Mike,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 5:23 AM, Yao, Mike wrote:
Hi Elsa,

Thanks for the update. I am aware of the change.

best,

Mike

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:46 AM
To: Yao, Mike <mzyao@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 225; Please acknowledge receipt

Dear Michael Yao,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Computer Engineering, BS
Electrical and Computer Engr (ECE)
10KP0109BS: Computer Engineering, BS
10KP0115BS: Electrical Engineering, BS

Dear Erhan,

Thank you very much, including for your support, but particularly for your promptness.

---Elsa

On 3/17/21 9:23 AM, Kudeki, Erhan wrote:
Dear Elsa,

ECE is endorsing the proposed modifications for CS 225 and its prerequisites. For ECE students following the ECE 220 path there is no impact of the proposed prerequisite change.

Best regards,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu
Professor and Associate Head for Undergraduate Affairs
Electrical and Computer Engineering, The Grainger College of Engineering
2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

On Mar 17, 2021, at 3:52 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Bruce Hajek, Michael Oelze and Erhan Kudeki,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data

Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Industrial Engineering (IE)
Systems Engineering and Design (SE)
10KP0127BS: Industrial Engineering, BS
10KP5532BS: Systems Engineering & Design, BS

Dear Carolyn,

Thank you very much for your prompt attention to this matter. I will discuss the CS minor status with you by separate email.

---Elsa

On 3/19/21 8:52 PM, clbeck50@gmail.com wrote:
Hi Elsa-
I received both - thank you!

I didn't read them carefully and frequently get double emails...

We will indeed contact you should we have questions. Will there be an update to the CS minor webpage soon?

Many thanks!
Carolyn

Sent from my iPhone

On Mar 19, 2021, at 8:03 PM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Heidi,

My other message was for clear, simple documentation of receipt of the acknowledgement. Please let me know if you need any information or help with deciding how to accommodate these changes.

I have not yet received an acknowledgement of the email informing ISE of the changes to the prerequisites of CS 225. In case it got overlooked or mistaken as this message, it was sent March 17, 2021 at 3:54am. It would be much appreciated to have an acknowledgement of the message, too, please.

---Elsa

On 3/19/21 3:21 PM, Craddock, Heidi C wrote:

Elsa,

Thank you for your email. ISE is aware of these changes and we are working to make sure our curricula reflect these changes.

Best,

Heidi

HEIDI C CRADDOCK
Associate Director of Undergraduate Programs

The Grainger College of Engineering
Industrial and Enterprise Systems Engineering

104B Transportation Building
104 S. Mathews
Urbana, IL 61801
217.244.3855 | hcraddoc@illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:29 AM

To: Shamma, Jeff <jshamma@illinois.edu>; Craddock, Heidi C <hcraddoc@illinois.edu>; Redman, Lauren <lredman@illinois.edu>; Beck, Carolyn L <beck3@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Jeff Shamma, Heidi Craddock, Lauren Redman and Carolyn Beck,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).
In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. We expect to phase out CS 125 starting in Fall 2021. For almost all purposes, replacing "CS 125" with "(CS 125 or CS 124)" is the appropriate revision. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:54 AM
To: Shamma, Jeff <jshamma@illinois.edu>; Craddock, Heidi C <hcraddoc@illinois.edu>; Redman, Lauren <lredman@illinois.edu>; Beck, Carolyn L <beck3@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 225; Please acknowledge receipt

Dear Jeff Shamma, Heidi Craddock, Lauren Redman and Carolyn Beck,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Linguistics (LING)

Dear James,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 8:50 AM, Yoon, James wrote:

Dear Elsa,

Thank you for the email. We will be in touch if we have any questions.

James

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:55 AM
To: Yoon, James <jyoon@illinois.edu>
Subject: Notification of changes to CS 225; Please acknowledge receipt

Dear James Hye Suk Yoon,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

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Elsa L Gunter

Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KP0121BS: Engineering Physics, BS

Dear Yann,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 10:46 AM, Chemla, Yann Robert wrote:

Hi Elsa,

Yes, Physics is aware of the changes to the CS introductory sequence. We will be working on updating the physics curriculum sequence accordingly.

Best wishes,

Yann Chemla
Professor of Physics
Associate Head for Undergraduate Programs
Center for the Physics of Living Cells (CPLC)
Center for Biophysics and Quantitative Biology
161 Loomis, University of Illinois at Urbana-Champaign
1110 W. Green St., Urbana, IL 61801
(217) 333-6501 (Office)
(217) 244-7187 (Fax)
email ychemla@illinois.edu
url http://www.illinois.edu/~ychemla & http://research.physics.illinois.edu/chemlalab/

From: Gunter, Elsa
Sent: Wednesday, March 17, 2021 4:00 AM
To: Chemla, Yann Robert <ychemla@illinois.edu>; Grosse Perdekamp, Matthias <mgp@illinois.edu>; Cooper, S Lance <slcooper@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 225; Please acknowledge receipt

Dear Yann Chemla, Matthias Perdekamp and S. Lance Cooper,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses

being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KP0130BS: Materials Science & Engineering, BS

Dear Nancy,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 11:15 AM, matse-head wrote:
Dear Elsa,

Thanks for making MatSE aware of these changes. MatSE will need to change a few of our prerequisite listings to accommodate the proposed changes to the CS curriculum, but otherwise no concerns.

Nancy Sottos
Department Head,
Materials Science and Engineering

On Mar 17, 2021, at 3:56 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Nancy Sottos,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KP0133BS: Mechanical Engineering, BS

Dear Sanjiv,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 8:06 AM, Sinha, Sanjiv wrote:
Dear Elsa,

This is to acknowledge that MechSE is aware of the changes you list in your email. Thank you for the note.

— Sanjiv.

On Mar 17, 2021, at 3:58 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Anthony Jacobi and Sanjiv Sinha,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

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--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KP0408BS: Bioengineering, BS

Dear Mark,
Thank you very much, particularly for your promptness.
---Elsa

On 3/17/21 12:59 PM, Anastasio, Mark A wrote:
Dear Elsa,

Thank you for letting us know.

-Mark

MARK ANASTASIO
Donald Biggar Willett Professor in Engineering
Head, Department of Bioengineering
Affiliate Professor, Department of Computer Science
Affiliate Professor, Department of Electrical and Computer Engineering
Affiliate Professor, Carle Illinois College of Medicine
Member, Beckman Institute for Advanced Science and Technology

Department of Bioengineering | The Grainger College of Engineering
1406 W. Green Street | 1102G Everitt Lab, MC 278 | Urbana, IL 61801
(P) 217.300.0314 | maa@illinois.edu
https://bioengineering.illinois.edu/
Lab Website: https://anastasio.bioengineering.illinois.edu

On Mar 17, 2021, at 3:50 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Mark Anastasio, Greg Underhill and Andrew Smith,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

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appreciated.
---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KP4048BS: Aerospace Engineering, BS

Dear Jon,

Thank you very much.

---Elsa

On 3/23/21 5:03 PM, Freund, Jonathan wrote:

Acknowledged here too.

Jon

From: "Gunter, Elsa" <egunter@illinois.edu>
Date: Tuesday, March 23, 2021 at 4:25 PM
To: "Bretl, Timothy Wolfe" <tbretl@illinois.edu>
Cc: "Freund, Jonathan" <jbfreund@illinois.edu>, "Bodony, Daniel J" <bodony@illinois.edu>, "Herzog, Stephen M" <smherzog@illinois.edu>, "Newell, Brooke" <bsnewell@illinois.edu>
Subject: Re: Notification of changes to CS 225; Please acknowledge receipt

Dear Tim,

That's weird. My mail has no recorded of it. Thank you very much for your prompt relies.

---Elsa

On 3/23/21 4:18 PM, Bretl, Timothy Wolfe wrote:

Hi Elsa,

I gave you this acknowledgement last Wednesday, but I am happy to do it again. Thanks!

Best,

Tim

Sent from my iPhone

On Mar 23, 2021, at 3:15 PM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Jonathan, Tim and Daniel,

Could I please have an acknowledgement of receipt of this message?

---Elsa

On 3/17/21 3:48 AM, Elsa L. Gunter wrote:

Dear Jonathan Freund, Tim Bretl and Daniel Bodony,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

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10KV5876BSLA: Brain & Cognitive Science, BSLAS

Dear Mark,

Thank you very much for your prompt reply.

---Elsa

On 3/26/21 4:35 PM, Aber, Mark S wrote:
Dear Elsa,

Thanks for making us aware of these changes.

Best,
Mark

Mark Aber
Associate Head and Director of Undergraduate Studies
Associate Professor
Department of Psychology

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Thursday, March 25, 2021 8:12 PM
To: Aber, Mark S <maber@illinois.edu>; Allen, Nicole E <allenne@illinois.edu>; Heller, Wendy <w-heller@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>; Wszalek, Gary J <wszalek@illinois.edu>; Vermillion, Billy Budd <bbv@illinois.edu>; Wynn, Nikki <nwynn@illinois.edu>; McKinzie, Langston Felton <mckinzi2@illinois.edu>
Subject: Notification of changes to CS 225; Please acknowledge receipt

Dear Mark Aber, Nicole Allen and Wendy Heller,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an

equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

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--
Elsa L Gunter
Research Professor
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Department of Computer Science
University of Illinois at Urbana - Champaign

5498: Computational Science & Engineering Minor

Dear Bryan,

Thank you very much for letting me know.

---Elsa

On 3/27/21 1:02 AM, Wang, Bryan wrote:
Hi Elsa,

I have received your email, and I'm aware of the changes. Thank you!

Bryan

On Mar 27, 2021, at 12:08 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Luke Olson and Bryan Wang,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 225, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. Beyond that, we have shifted the programming prerequisites for CS 225 Data Structures from (CS 125 or ECE 220) to (CS 126 or CS 128 or ECE 220). This revision to the prerequisites for CS 225 will be effective starting in Spring 2022. By introducing CS 128 and shifting the prerequisites for CS 225, all students taking CS 225 will enter with an equal background, and will be better prepared to succeed in the course. CS 225 will continue to be open to all students in the university satisfying prerequisites, subject to availability. For students wishing a course on Data Structures with fewer prerequisites, starting in 2021-2022 CS will run CS 277 Algorithms and Data Structures for Data Science. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware.

--

Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor

Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Letters of Acknowledgement for Changes to CS 125

Table of Contents

More detailed information for the treatment of CS 125 in the Math & CS, Stat & CS and CS+X programs is found in “Letters of Agreement with the CS+X Partners”

Agricultural and Biological Eng (ABE)

Dear Ronaldo,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 7:45 AM, Maghirang, Ronaldo G wrote:

Dear Elsa,

Thank you for your email. This is to confirm that we are aware of the changes you have indicated below.

Sincerely,

Ronaldo

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:09 AM
To: Maghirang, Ronaldo G <ronaldom@illinois.edu>; Sullivan, Ronda Lynn <rsully@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Ronaldo Maghirang and Ronda Sullivan,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. We expect to phase out CS 125 starting in Fall 2021. For almost all purposes, replacing "CS 125" with "(CS 125 or CS 124)" is the appropriate revision. If you have any questions or concerns about this matter, please let me know.

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---Elsa

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Elsa L Gunter
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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Information Sciences (IS)
School of Information Sciences

Dear Emily Knox,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 9:29 AM, Knox, Emily Joyce Magdelyn wrote:
Thank you for the notification of this change.

EMILY JOYCE MAGDELYN KNOX
Associate Professor
Interim Associate Dean for Academic Affairs
Director of Graduate Studies

University of Illinois at Urbana-Champaign
School of Information Sciences
112 LIS | M/C 493
Champaign, IL 61820
217.300.0212 | knox@illinois.edu
emilyknox.net

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:33 AM
To: Knox, Emily Joyce Magdelyn <knox@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Emily Knox,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to

Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. We expect to phase out CS 125 starting in Fall 2021. For almost all purposes, replacing "CS 125" with "(CS 125 or CS 124)" is the appropriate revision. If you have any questions or concerns about this matter, please let me know.

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Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Materials Science & Engr (MSE)

Dear Nancy,

Thank you for your prompt reply.

---Elsa

On 3/23/21 8:53 PM, Sottos, Nancy R wrote:
Acknowledged.

On Mar 23, 2021, at 3:13 PM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Nancy,

I much appreciate the response you gave to the notification we gave with respect to changes being made to the prerequisites to CS 225. I would further appreciate it if you could give me an acknowledgement of this notification of the changes happening with CS 125.

---Elsa

On 3/17/21 3:35 AM, Elsa L. Gunter wrote:
Dear Nancy Sottos,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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---Elsa

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Research Professor
Director of Undergraduate Programs

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University of Illinois at Urbana - Champaign
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Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

Music (MUS)

Dear Rebecca and all,

Thank you, particularly for your prompt response.

We expect to run both CS 124 and CS 128 at least every Fall and Spring, both at high hundreds of seats. We do not require to take CS 124 in the Fall and CS 128 in the Spring, if that is the question you are asking. When you say "taken in a two semester sequence", I expect most will want to take them one after the other, but each is a complete course in itself and the only loss in inserting semesters in the middle is reduced retention of material, in case that is the question you are asking. CS 124 will be an enforced prerequisite for CS 128, if that is what you are asking.

---Elsa

On 3/17/21 6:39 AM, Spennetta, Rebecca Warren wrote:
Dear Elsa,

Thank you for this information and thorough explanation of the CS 125 phase out. Two questions for clarification - will CS 124 and CS 128 be taken in a two semester sequence? Will they be offered both fall and spring?

Thank you!
Rebecca

Rebecca W Spennetta, MS
Undergraduate Academic Advisor
School of Music, MB 2058
University of Illinois
1114 W. Nevada
Urbana, IL 61801
Office: 217.300.1392

On Mar 17, 2021, at 3:39 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Jeff Sposato, Linda Moorhouse, Christina Bashford, Rebecca Spennetta and Heinrich K Taube,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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replacing "CS 125" with "(CS 125 or CS 124)" is the appropriate revision. If you have any questions or concerns about this matter, please let me know.

In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
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--
Elsa L Gunter
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Department of Computer Science
University of Illinois at Urbana - Champaign

Middle Grades Education, BS
10KN5422BS: Middle Grades Education, BS

Dear Sarah,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 11:48 AM, McCarthey, Sarah Jane wrote:

Elsa,

We are aware of the changes and will advise students accordingly. Thank you.

Sarah J. McCarthey
Professor & Department Head
Curriculum and Instruction
305 Education
University of Illinois at Urbana-Champaign
1310 S Sixth Street
Champaign, IL 61820
(217) 244 1149
mccarthe@illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Date: Wednesday, March 17, 2021 at 3:17 AM
To: McCarthey, Sarah Jane <mccarthe@illinois.edu>, Jones, Ann Christine <acjones3@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Sarah McCarthey and Ann Jones,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. We expect to phase out CS 125 starting in Fall 2021. For almost all purposes, replacing "CS 125" with "(CS 125 or CS 124)" is the appropriate revision. If you have any questions or concerns about this matter, please let me know.

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University of Illinois at Urbana - Champaign

10KP0408BS: Bioengineering, BS

Dear Mark,

Thank you for you prompt follow-up on this mater.

---Elsa

On 3/21/21 10:32 AM, Anastasio, Mark A wrote:
Hi Elsa,

I'm writing to confirm receipt of this second notification concerning CS 125.

Thanks,
Mark

MARK ANASTASIO
Donald Biggar Willett Professor in Engineering
Head, Department of Bioengineering
Affiliate Professor, Department of Computer Science
Affiliate Professor, Department of Electrical and Computer Engineering
Affiliate Professor, Carle Illinois College of Medicine
Member, Beckman Institute for Advanced Science and Technology

Department of Bioengineering | The Grainger College of Engineering
1406 W. Green Street | 1102G Everitt Lab, MC 278 | Urbana, IL 61801
(P) 217.300.0314 | maa@illinois.edu
https://bioengineering.illinois.edu/
Lab Website: https://anastasio.bioengineering.illinois.edu

On Mar 17, 2021, at 3:12 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Mark Anastasio, Greg Underhill and Andrew Smith,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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Department of Computer Science
University of Illinois at Urbana - Champaign

Nuclear, Plasma, & Radiological Engineering, BS 10KP5183BS: Nuclear, Plasma, and Radiological Engineering, BS

Dear Rizwan,

Thank you very much, particularly for your promptness.

Part of the point of the change is so that all students going into CS 225 will have much closer to the same background (ECE will stil have their separate but fairly comparable path). All students wanting CS 225 and beyond will take or proficiency CS 124, then CS 128 and CS 173 (or Math 213), then CS 225. We expect to run both CS 124 and CS 128 open to all (with the prerequisites) on the same general size as CS 125 and CS 225 have been. We will run all of CS 124, CS 128 and CS 225 at least each Fall and Spring. (CS 173 too.)

For the revised CS minor, students are required to take CS 124, CS 128, CS 173, CS 225 and two upper-lever (300 and 400 level) CS courses (excluding a few we never teach). CS 225 is a prerequisite for almost all 400-level CS courses, so CS 225 is a necessity in the minor to claim the students are get a general foundation in CS. Through CS 225 is 13 credits. The two additional upper-level courses is another 6 credits, bring the total to 19 credits. That is all we can require or support in a minor because it is all we are allowed to. However, with the old minor required the students to take at least 20 credit hours, so in some directions, the new minor is easier to acquire than the old minor.

---Elsa

On 3/17/21 9:58 AM, Uddin, Rizwan wrote:

Dear Elsa,

We do have at least one concern, and Tomasz and Becky might have more.

NPRE students who took 125, they were then able to take CS225 etc. How are the higher level CS courses' pre-reqs going to change? If 128 will also be required as pre-req for Data Structures course, then will NPRE students be allowed to take CS 128?

It would be good for us to see the path NPRE students will have in the modified CS curriculum if they want to complete a CS minor.
Thanks

rizwan

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:41 AM
To: Uddin, Rizwan <rizwan@illinois.edu>; Meline, Becky Jane <bmeline@illinois.edu>; Kozlowski, Tomasz <txk@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Rizwan Uddin, Becky Meline and Tomasz Kozlowski,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

In the Computer Science BS revision, we are revising our introductory sequence to replace the 4 credit CS 125 Introduction to Computer Science with a two course sequence, CS 124 Introduction to Computer Science I and 128 Introduction to Computer Science II, each for 3 credits. We expect to phase out CS 125 starting in Fall 2021. For almost all purposes, replacing "CS 125" with "(CS 125 or CS 124)" is the appropriate revision. If you have any questions or concerns about this matter, please let me know.

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---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KP5532BS: Systems Engineering & Design, BS

Dear Heidi,

Thank you very much for your acknowledgement.

---Elsa

On 3/19/21 3:21 PM, Craddock, Heidi C wrote:
Elsa,

Thank you for your email. ISE is aware of these changes and we are working to make sure our curricula reflect these changes.

Best,
Heidi

HEIDI C CRADDOCK
Associate Director of Undergraduate Programs

The Grainger College of Engineering
Industrial and Enterprise Systems Engineering

104B Transportation Building
104 S. Mathews
Urbana, IL 61801
217.244.3855 | hcraddoc@illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:29 AM
To: Shamma, Jeff <jshamma@illinois.edu>; Craddock, Heidi C <hcraddoc@illinois.edu>; Redman, Lauren <lredman@illinois.edu>; Beck, Carolyn L <beck3@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Jeff Shamma, Heidi Craddock, Lauren Redman and Carolyn Beck,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign
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Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KV0336BS: Geology, BS
10KV3880BS: Geology: Geophysics, BS
10KV3881BS: Geology: Environmental Geology, BS

Dear Steve,

Thank you very much, particularly for your promptness.

I meant CS 125 to smooth the transition over the next year or so as, for example, for students coming in with CS 125 transfer credit instead of CS 124 transfer credit, and other small hiccups. If you would rather deal with such matters by substitution, that is clearly a fine option. If you want to add CS 128, that is fine too, but only transfers and students who sit the CS 128 proficiency without the CS 124 one should be able to get CS 128 without CS 124.

---Elsa

On 3/18/21 10:20 AM, Altaner, Stephen P wrote:
Dear Prof. Gunter,

Thanks for informing us of this change.

Just to clarify, did you mean that the appropriate revision for several of our degree options is to replace “CS 125” with “CS 124 and 128” rather than “CS 124 or 125”, considering that you are phasing out CS 125, i.e., eliminating it as a course, in Fall, 2021?

I look forward to your response.

Steve

****
Stephen P. Altaner
Associate Professor and Associate Head of Geology
Dept. of Geology
3014 Natural History Bldg.
1301 W. Green St.
Univ. of Illinois, Urbana, IL 61801
(217) 244-1244
altaner@illinois.edu

On Mar 17, 2021, at 3:26 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Stephen P Altaner and Tom Johnson,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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In order for the modification to the Computer Science BS program to proceed, we need a response to this email indicating that you are aware of the changes. Your prompt attention to this would be most appreciated.
---Elsa

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Elsa L Gunter
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Department of Computer Science
University of Illinois at Urbana - Champaign

10KV0439BSLA: Mathematics, BSLAS
10KV0461BSLA: Actuarial Science, BSLAS
10KV1438BSLA: Mathematics & Computer Science, BSLAS
10KV3894BSLA: Mathematics: Operations Research, BSLAS
10KV3895BSLA: Mathematics: Applied Mathematics , BSLAS
10KV3896BSLA: Mathematics: Graduate Preparation, BSLAS
10KV3897BSLA: Mathematics: Mathematics Teaching Option, BSLAS

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Mathematics

273 Altgeld Hall, MC-382
1409 West Green Street
Urbana, IL 61801

Re: Change of CS 125 and changes to Math+CS

The Mathematics Department acknowledges and supports the proposed change of eliminating CS 125 to instead create CS 124 and CS 128. The department will be submitting a Major change to allow CS 124 to replace CS 125 as one of its allowed courses in its core requirements.

With this change, the department supports making not only the necessary changes in the Math + CS program to accommodate the CS 125 elimination, but additional changes to the degree to better meet students' needs. In particular, replacing CS 125 by CS 124 and CS 128 and CS 126 by CS 222, adding flexibility by allowing students to choose between CS 233 and CS 241 or CS 240 and two 400-level CS courses. At this time, we also support making the additional changes, which formalize substitutions already regularly made, by allowing Math 413 and 427 in Group II and Math 424 in Group IV. Lastly, we support the suggestion by CS to remove CS 481 and 482 as options from Group V.

The Mathematics department has no concerns for enrollment issues with these changes and is pleased with the overall programatic initiatives CS is making to its Undergraduate offerings at this time.

Sincerely

Randy McCarthy

Randy McCarthy
Professor of Mathematics
Dir of Undergraduate Studies in Math
rmccrthy@illinois.edu

10KV5321BSLA: Econometrics and Quantitative Economics, BALAS

Dear George,

Thank you very much, particularly for your promptness. I believe that a single reply-all email acknowledgement is supposed to be sufficient for documentation. I appreciate your concern and attention to detail. Should I find I need this in another form, I will be back asking. :-)

---Elsa

On 3/18/21 4:16 PM, Deltas, George wrote:
Dear Elsa,

Thank you for the email and informing us of these changes. We will take them into account with regards to our own programs.

Let me know if my own acknowledgement of this is sufficient, or whether you would like any other individuals to also acknowledgement receipt.

Cheers,

George

GEORGE DELTAS
Professor, and Department Head

University of Illinois at Urbana-Champaign

Department of Economics
214E David Kinley Hall
1407 W Gregory Dr | M/C 707
Urbana, IL 61801
217.333.4678 | deltas@illinois.edu

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:20 AM
To: Grift, Lauria A <lagrift@illinois.edu>; Deltas, George <deltas@illinois.edu>; Powers, Elizabeth T <epowers@illinois.edu>; Toossi, Ali <toossi@illinois.edu>; Krasa, Stefan <skrasa@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Lauria Grift, George Deltas, Elizabeth Powers, Ali Toossi and Stefan Krasa,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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---Elsa

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Director of Undergraduate Programs
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University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

10KV5876BSLA: Brain & Cognitive Science, BSLAS

Dear Mark,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 9:09 AM, Aber, Mark S wrote:
Dear Elsa,

Thanks for the notice. By copy of this email, I am informing the Psychology Department advising staff of this change.

best,

Mark Aber
Associate Head and Director of Undergraduate Studies
Associate Professor
Department of Psychology

From: Gunter, Elsa <egunter@illinois.edu>
Sent: Wednesday, March 17, 2021 3:43 AM
To: Aber, Mark S <maber@illinois.edu>; Allen, Nicole E <allenne@illinois.edu>; Heller, Wendy <w-heller@illinois.edu>
Cc: Herzog, Stephen M <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Nicole Allen, Mark Aber and Wendy Heller,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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Department of Computer Science
University of Illinois at Urbana - Champaign
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Research Professor
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Department of Computer Science
University of Illinois at Urbana - Champaign

1200: Electrical & Computer Engineering Minor

Dear Erhan,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 9:25 AM, Kudeki, Erhan wrote:
Dear Elsa,

ECE is aware of and supports the proposed revisions for CS 125.

Best regards,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu
Professor and Associate Head for Undergraduate Affairs
Electrical and Computer Engineering, The Grainger College of Engineering
2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

On Mar 17, 2021, at 3:22 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Bruce Hajek, Michael Oelze and Erhan Kudeki,

The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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Elsa L Gunter
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Department of Computer Science
University of Illinois at Urbana - Champaign

3886: Geography & Geographic Information Science: Geographic Information Science, BSLAS

Dear Shaowen,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 10:13 AM, Wang, Shaowen wrote:

Good morning Elsa,

I confirm to have received your notification.

Thanks & best,

-Shaowen

Shaowen Wang
Professor and Department Head
Richard and Margaret Romano Professorial Scholar
Department of Geography and Geographic Information Science
Affiliate Professor
Computer Science, iSchool, Urban and Regional Planning
Founding Director
CyberGIS Center for Advanced Digital and Spatial Studies
University of Illinois at Urbana-Champaign
WhereCOVID-19: http://bit.ly/wherecovid19

From: "Gunter, Elsa" <egunter@illinois.edu>
Date: Wednesday, March 17, 2021 at 3:24 AM
To: "Wang, Shaowen" <shaowen@illinois.edu>
Cc: "Herzog, Stephen M" <smherzog@illinois.edu>
Subject: Notification of changes to CS 125; Please acknowledge receipt

Dear Shaowen Wang,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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5094: Informatics Minor, UG

Dear Karin,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 5:54 AM, Readel, Karin wrote:
Dear Elsa-
Thanks for this notification. We will adjust the INFO minor accordingly.

Karin

Karin Readel | Senior Coordinator for Informatics Education Programs
INFORMATICS @ ILLINOIS
616 E. Green St. | Suite 210 | MC-387 | Champaign IL 61820
University of Illinois
phone 217.244.1220 | email kereadel@illinois.edu
http://informatics.illinois.edu

On Mar 17, 2021, at 3:31 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Karin Readel,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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Research Professor
Director of Undergraduate Programs

Department of Computer Science
University of Illinois at Urbana - Champaign
--
Elsa L Gunter
Research Professor
Director of Undergraduate Programs
Department of Computer Science
University of Illinois at Urbana - Champaign

5498: Computational Science & Engineering Minor

Dear Luke,

Thank you very much, particularly for your promptness.

---Elsa

On 3/17/21 7:17 AM, Olson, Luke wrote:
Hi Elsa

Yes I'm aware of this.

I'll work with Bryan on updating our requirements to reflect this change.

Thanks for the notice

Luke

On Mar 17, 2021, at 4:15 AM, Gunter, Elsa <egunter@illinois.edu> wrote:

Dear Luke Olsen and Bryan Wang,
The Computer Science Department, in The Grainger College of Engineering, has proposed to make changes to several introductory sequence courses in the Computer Science BS program. One of the courses being affected by the program revision is CS 125, which your department references in its program of study or catalog of courses (according to CIM).

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