



Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Proposal to Establish the Bachelor of Science in Liberal Arts and Sciences (BSLAS) degree with a major in Computer Science and (LAS discipline)

SPONSORS:

Rob A. Rutenbar, Head, Department of Computer Science, 3-3373

Steven Leigh and Diane Musumeci, Associate Deans, College of Liberal Arts and Sciences, 3-1350; sleigh@illinois.edu and musumeci@illinois.edu

BRIEF DESCRIPTION: The major in Computer Science and an LAS discipline is a flexible program for students who plan to pursue technical or professional careers in areas requiring a sound grounding in computer science. This major allows students to combine study of computer science with training in a field in Liberal Arts and Sciences to offer students novel perspectives in interdisciplinary work. The major name will be paired with the appropriate LAS discipline and appear on the transcript via the Reasonable and Moderate Extension Process.

JUSTIFICATION: The BSLAS in Computer Science and Math or Statistics has been offered since the early 1970's and mid-1980's, respectively. This proposal expands those majors to include other disciplines within LAS. Students will combine the study of computer science alongside training in a wider variety of fields in Liberal Arts and Science to offer students novel perspectives in interdisciplinary work, without requiring students to complete the 150 hours of coursework required for a double degree in LAS and Engineering. The expansion of the major in LAS is in response to a request from the College of Engineering to enhance the preparation of Computer Science majors to meet increased market demands and employment opportunities. Students can use the curriculum to prepare either for employment immediately upon graduation or for pursuing graduate study in a wide variety of fields. Examples include programming in sciences (such as bioinformatics, population genetics, demography, geographic information sciences, climate modeling, or social network analysis) or in the humanities (digital restoration, textual analyses, or other

areas). The decision to participate in this major strictly rests with each LAS department. If an LAS unit wishes to participate, the College of LAS will review their proposal for the minimum of 24 hours of supporting coursework. Upon LAS approval, a memo would be sent to Provost office requesting the addition of that unit to the degree name for students pursuing that area. Four LAS units (Anthropology, Astronomy, Chemistry, and Linguistics) have already provided proposals for the minimum of 24 hours of supporting coursework. See Appendices B-E for specific course information.

Students interested in Mathematics or Statistics should enroll in the existing Math/CS or Stat/CS majors.

The Intercollegiate Transfer guidelines in place for the MATH/CS and STAT/CS majors will also apply to BSLAS in Computer Science and an LAS Discipline.

Addendum to CS+X proposal

In Fall 2011, the Department of Computer Science initiated a change in its curriculum, allowing students to take a new course, CS 233, instead of a two-course sequence (CS 231 and CS232, Computer Architecture I and II, respectively). Both LAS units with existing CS degrees (Mathematics and Statistics) as well as relevant College units approved the change.

The implication of this change is minimal for the proposed CS+X degree in LAS. Specifically, in the original proposal, CS 231 was required for CS+X students, but not CS 232. The new course will simply replace CS 231 in the CS+X curriculum. This has an advantage in making the proposed CS+X degree more consistent with existing CS degrees.

The official paperwork has not been submitted for the new course. Once it is, we will amend the LAS curricula mentioned above.

BUDGETARY AND STAFF IMPLICATIONS:

a. Additional staff and dollars needed

None. Any additional needs will be financed through tuition differential. Students in the CS+LAS Discipline major will follow the current arrangement for the CS+Math/Stats; i.e., students will be coded under ENG for tuition assessment. LAS and

ENG have agreed to split the tuition for CS+LAS Discipline. LAS will reserve funds from differential tuition for investments in departments in proportion to BSLAS Computer Science majors.

- b. Internal reallocations (e.g., change in class size, teaching loads, student-faculty ratio, etc.)

The CS courses required for majors have capacity or can be expanded through the use of differential tuition. The College of Engineering does not believe that there would be a challenge to CS advising resources assuming 20-25 majors/year. Although CS would assume primary responsibility for the advising load, they will work jointly with LAS advisors in the respective disciplines. The Colleges of Engineering and LAS will work together to construct suitable LAS completions of the degree. LAS and CS will work to publicize the major expansion to departments and will ensure that proper advising resources are provided, particularly in ensuring contacts between current CS advisors and LAS departmental advising staff. Should LAS experience high demand for this curriculum, advising resources will be supplemented as needed.

- c. Effect on course enrollment in other units and explanations of discussions with representatives of those departments

Students in this program will be paying the same differential tuition as current Engineering Computer Science students on a course by course basis. The College of Engineering and the College of LAS will split the differential tuition.

- d. Impact on the University Library

As the CS degree already exists, and as it will be paired with already existing LAS coursework, there are no additional resources needed for the library.

- e. Impact on computer use, laboratory use, equipment, etc.

Existing facilities are adequate now and will be improved as needed through the use of differential tuition.

DESIRED EFFECTIVE DATE: Fall 2013

CLEARANCES:

Signatures:

Charles L. Tindall III
College of Engineering Representative:

11/21/2011
Date:

Adam R. Key
College of Liberal Arts and Sciences Representative:

11/23/11
Date:

Provost Representative:

Date:

Educational Policy Committee Representative:

Date:

Programs of Study Entry

Computer Science and Liberal Arts and Sciences Discipline

cs.illinois.edu

Head of Department: Rob A. Rutenbar

Department Office: 2232 Siebel Center, 201 N. Goodwin Avenue, Urbana, (217) 333-3373

The LAS major in Computer Science and an LAS Discipline is a flexible program for students who plan to pursue technical or professional careers in arts and sciences areas requiring a sound grounding in computer science. Students can use the supporting coursework to prepare for employment immediately upon graduation or for pursuing graduate study in a wide variety of fields or to complete a significant body of courses in a single area, such as a double major or minor. Examples include programming in sciences (such as bioinformatics, population genetics, demography, geographic information sciences, climate modeling, or social network analysis) or in the humanities (such as digital restoration, textual analyses, or other areas) or social sciences (such as population research).

Students interested in Mathematics or Statistics should enroll in the Math/CS or Stat/CS degree

Major in Sciences and Letters Curriculum

Computer Science E-mail: academic@cs.illinois.edu

Please see the computer science advisor as well as the advisor in your LAS discipline.

Degree title: Bachelor of Science in Liberal Arts and Sciences

Minimum required major and supporting course work normally equates to 66 hours, including a minimum of 30 in Computer Science

General education: Students must complete the [Campus General Education](#) requirements.

Minimum hours required for graduation: 120 hours

Departmental distinction: TBD, minimum GPA suggested

Hours	Requirements
30	Computer Science Core
	CS 125, Intro to Computer Science (4 hours)

	CS 173, Discrete Structures (3 hours)
	CS 225, Data Structures (4 hours)
	CS 231, Computer Architecture I (3 hours)
	CS 241, System Programming (4 hours)
	CS 242, Programming Studio (3 hours)
	CS 373, Theory of Computation (3 hours)
	CS 421, Programming Languages & Compilers (3 hours)
	CS 473, Fundamental Algorithms (3 hours)
12	Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)
	Math 221, Calculus I (4 hours)
	Math 231 Calculus II (3 hours)
	Math 225, Introductory Matrix Theory (2 hours)
	Stat 100, Statistics (3 hours)
Min of 24 hours	Supporting coursework ¹
	An additional 24 hours of coursework in a Liberal Arts and Sciences discipline or in a coherent Liberal Arts and Sciences interdisciplinary field chosen in consultation with an advisor and approved by the LAS department. Must include at least 12 hours at the 300- or 400-level. An approved LAS major may be used to satisfy this requirement.
Total of 66 hours (minimum)	

1. Students should discuss pursuing a LAS Minor or double majoring in a LAS discipline with the Computer Science academic advisor and the advisor in the appropriate [LAS discipline](http://www.las.illinois.edu/students/programs/majors/) (<http://www.las.illinois.edu/students/programs/majors/>).

Twelve hours of 300- and 400-level courses in the major must be taken on this campus.

All LAS foreign language requirements must be satisfied.

A Major Plan of Study Form must be completed and submitted to the LAS Student Affairs Office by the beginning of the fifth semester (60-75 hours). Please see the computer science advisor as well as the advisor in your LAS discipline

Appendix A

Budgetary and Staff Implications

New Degree Programs – Required Budgetary Implication Questions

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

Students enrolled in this program will pay the same differential tuition as current College of Engineering Computer Science students. Differential tuition will be shared equally by the College of Liberal Arts and Sciences and the College of Engineering.

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

No.

- 3) If no new resources are required, how will the unit create capacity or surplus to appropriately resource this program? (What functions or programs will the unit no longer support?)

We do not anticipate a need for additional resources that cannot be met by differential tuition paid by these students.

- 4) Please provide a market analysis: What market indicators are driving this proposal? What type of employment outlook should these graduates expect? What resources will be required to assist students with job placement?

This proposed curriculum responds to tremendous demand for computation in traditional liberal arts and sciences fields. Prominent examples include emerging computational fields in linguistics, biology, neuroscience, atmospheric sciences, finance and economics. Quantitative advances in social sciences have created further demand for workers with computational skills.

According to projections (through 2018) from the Bureau of Labor Statistics,

"[The computer and mathematical science] occupations are expected to grow more than twice as fast as the average for all occupations in the economy. Demand for workers in computer and mathematical occupations will be driven by the continuing need for businesses, government agencies, and other organizations to adopt and utilize the latest technologies."

Supporting this projection is the fact that even in the bad economy of 2010, UIUC computer science graduates received an average of 2.4 job offers.

Finally, we note that peers such as Berkeley, Michigan, and Wisconsin offer similar programs."

APPENDIX B

Sample Program with Anthropology as the LAS discipline.

Hours	Requirements
30	Computer Science Core
	CS 125, Intro to Computer Science (4 hours)
	CS 173, Discrete Structures (3 hours)
	CS 225, Data Structures (4 hours)
	CS 231, Computer Architecture I (3 hours)
	CS 241, System Programming (4 hours)
	CS 242, Programming Studio (3 hours)
	CS 373, Theory of Computation (3 hours)
	CS 421, Programming Languages & Compilers (3 hours)
	CS 473, Fundamental Algorithms (3 hours)
12	Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)
	Math 221, Calculus I (4 hours)
	Math 231 Calculus II (3 hours)
	Math 225, Introductory Matrix Theory (2 hours)
	Stat 100, Statistics (3 hours)
Min of 24 hours	Supporting coursework.
	An additional 24 hours of coursework in a Liberal Arts and Sciences discipline or in a coherent Liberal Arts and Sciences interdisciplinary field chosen in consultation with an advisor. Must include at least 12 hours at the 300- or

	400-level. An approved LAS major may be used to satisfy this requirement. [Anthropology Example]
12	Introductory Core: Anth 220, Introduction to Archaeology (3 hours) Anth 230, Sociocultural Anthropology (3 hours) Anth 240, Biological Anthropology (3 hours) Anth 270, Linguistic Anthropology (3 hours)
12	Advanced Anthropology Courses: Anth 456, Human Osteology (3 hours) LLS 479, Race, Medicine, and Society (same as ANTH 479) (3 hours) Anth 440, Human Paleontology (3 hours) Anth 445, Research in Bioanthropology (Capstone) (3 hours)
Total of 66 hours (minimum)	

Background Information

The example of this program in Anthropology offers important resources to our students and department. The example concentrates on biological anthropology. The main rationale for this concentration is that imaging technologies are now widely used in biological anthropology. For example, imaging technologies are used commonly to analyze human fossil remains, enabling sharing of basic data and preservation of irreplaceable and unique discoveries. In addition, both hardware and software are revolutionizing fieldwork, ranging from sophisticated GIS applications to equipment for ground-penetrating radar. The proposed degree has the potential to bring significant advances in these areas.

The field has also made significant quantitative advances, necessitating specialized computer science skills that are often related to new imaging capacity. The proposed program will help train students with significant CS skills who will be in excellent positions to advance the field. Specialized training in biological anthropology will provide students with detailed engagement with the materials.

We can also anticipate that other subfields, including sociocultural, linguistic anthropology, and archaeology can help train in this major. In linguistic anthropology, we might expect parallels with the exemplar program from the Linguistics Department. In sociocultural anthropology, CS majors could be expected to address problems that relate to collection and analysis of large quantities of

qualitative data derived from participant observation and interviews. The problems that could be addressed in archaeology resemble those in biological anthropology, concentrating on imaging and image analysis.

APPENDIX C

Sample Program with Astronomy as the LAS discipline.

Hours	Requirements
30	Computer Science Core
	CS 125, Intro to Computer Science (4 hours)
	CS 173, Discrete Structures (3 hours)
	CS 225, Data Structures (4 hours)
	CS 231, Computer Architecture I (3 hours)
	CS 241, System Programming (4 hours)
	CS 242, Programming Studio (3 hours)
	CS 373, Theory of Computation (3 hours)
	CS 421, Programming Languages & Compilers (3 hours)
	CS 473, Fundamental Algorithms (3 hours)
12	Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)
	Math 221, Calculus I (4 hours)
	Math 231 Calculus II (3 hours)
	Math 225, Introductory Matrix Theory (2 hours)
	Stat 100, Statistics (3 hours)
Min of 24 hours	Supporting coursework.
	An additional 24 hours of coursework in a Liberal Arts and Sciences discipline or in a coherent Liberal Arts and Sciences interdisciplinary field chosen in consultation with an advisor. Must include at least 12 hours at the 300- or

	400-level. An approved LAS major may be used to satisfy this requirement. [Astronomy Example]
12	Physics and Math Courses: PHYS 211, University Physics: Mechanics (4 hours) PHYS 212, University Physics: Elec & Mag (4 hours) MATH 241, Calculus III (4 hours)
	ASTR 210, General Astronomy- Recommended but not required (prerequisite for ASTR 350 and recommended but not required for all 400 level courses)
12	Intermediate and Advanced Astronomy. Select 12 hours from the following. Taking one of the computation-intensive ASTR 496 Seminar in Astronomy sections is strongly encouraged. ASTR 330, Extraterrestrial Life (3 hours) ASTR 350, Introduction to Cosmology (3 hours) (prerequisite is ASTR 210) ASTR 390, Individual Study (1-4 hours) ASTR 404, Stellar Astrophysics (3 hours) ASTR 405, Solar System and IS Medium (3 hours) ASTR 406, Galaxies and the Universe (3 hours) ASTR 414, Astronomical Techniques (4 hours) ASTR 496, Seminar in Astronomy (1-4 hours) (appropriate topics include: Practical Informatics, Computational Astrophysics, Python for Computational Astro, and the Art and Practice of Astronomy)
Total of 66 hours (minimum)	

Background Information

Astronomy, particularly at Illinois, is a computation-intensive discipline. Computational challenges in astronomy, including radio astronomical data processing, analysis of large optical image data sets, and dynamical and statistical simulation of astronomical systems, test the limits of currently available hardware and software and have led to significant advances in computational science (such as the founding of NCSA by an Astronomy faculty member). Astronomy has a rich enough set of problems to solve that many interesting research problems are accessible to undergraduates. This program of study will offer computationally focused students with streamlined introduction to astronomy, providing just enough background for the student to understand astronomically motivated computational challenges.

As an example, a student may be interested in large data sets. The student would take the 12 hours of prerequisites, Galaxies and the Universe (3), Astronomical Techniques (4), Practical Informatics (2), and then work with a faculty member on a research project through the ASTR 390, Individual

Study rubric (3) with the project motivated by one of the active big-data projects in the Department, including the Dark Energy Survey, the Large Synoptic Survey Telescope, and the Square Kilometer Array. A similar program of study might apply for a student interested in numerical simulation of galaxy clusters, leading through Stellar Astrophysics (3), Galaxies and the Universe (3), Computational Astrophysics (3), and Individual Study (3).

Students wishing to enter graduate study in astronomy would require additional coursework in physics, and would be strongly encouraged to take ASTR 210. Students with a strong CS background are in high demand in Astronomy graduate programs worldwide, including by our own graduate program. Students contemplating a career in private industry would gain potentially valuable experience working on cutting-edge computational problems in areas where there is also significant demand in industry, such as image processing and mining large data sets.

APPENDIX D

Sample Program with Chemistry as the LAS discipline.

Hours	Requirements
30	Computer Science Core
	CS 125, Intro to Computer Science
	CS 173, Discrete Structures
	CS 225, Data Structures
	CS 231, Computer Architecture I
	CS 241, System Programming
	CS 242, Programming Studio
	CS 373, Theory of Computation
	CS 421, Programming Languages & Compilers
	CS 473, Fundamental Algorithms
12	Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)
	Math 221, Calculus I
	Math 231 Calculus II
	Math 225, Introductory Matrix Theory
	Stat 100, Statistics
Min of 24 hours	Supporting coursework.
	An additional 24 hours of coursework in a Liberal Arts and Sciences discipline or in a coherent Liberal Arts and Sciences interdisciplinary field chosen in

	consultation with an advisor. Must include at least 12 hours at the 300- or 400-level. An approved LAS major may be used to satisfy this requirement. [Chemistry Example]
11-12	<p>Core Courses: Chem 202, Accelerated Chemistry I (3 hours) Chem 203, Accelerated Chemistry Lab I (2 hours) Chem 204, Accelerated Chemistry II (3 hours)</p> <p>Choose one of the following: Chem 232 Elementary Organic Chemistry I (3 hour option recommended) or Chem 236, Fundamental Organic Chem I (4 hours)</p>
13	Biophysical Chemistry Courses
	Chem 442, Physical Chemistry I (4 hours)
	Chem 444 Physical Chemistry II (4 hours)
	Chem 470, Computational Chemical Biology (3 hours)
	<p>Choose one of the following: Chem 445 Physical Principles Lab I (2 hours) or CHEM 499, Senior Thesis (2-6 hours)</p>
Total of 66 hours (minimum)	

Background Information:

The example of this program in Chemistry offers important resources to our students and department. The example concentrates on biophysical chemistry. The main rationale for this concentration is that imaging technologies, quantum chemical calculations, molecular dynamics simulations, computational modeling and visualization are now widely used in all areas of chemistry, especially in those areas at the interface of chemistry, biology, and physics. For example, various high-resolution spectroscopies can now image all the major components in a biological cell, and while we can follow the processes of assembly, folding, and chemical reactions within the cell, we lack the tools to integrate the experimental data with computer models of the entire organism. Revolutions in both hardware and software, ranging from multiple GPU/CPU cores and parallel

codes, allow us to address the challenges in size and time scales of the cellular biochemical processes. The proposed degree has the potential to bring significant advances in these areas.

The School of Chemical Sciences and Department of Chemistry have already invested in a state of the art 3D visualization system and a high performance computer facility, and while we have instituted a Computer Science and Engineering (CSE) option for the graduate students in Chemistry, we do not have a similar program for the undergraduates. The proposed program will help train students with significant CS skills who will be in excellent positions to advance the field of computational chemistry and biophysics. Specialized training in biophysical chemistry will provide students with detailed engagement with the materials.

We also anticipate that other areas like chemical biology, biophysics, and biological physics can help train in this major. We expect strong synergy with undergraduate educational initiatives stemming from the NSF Center for Physics of Living Cells in the Physics Department as well as the Center for Biophysics and Computational Biology in Life Sciences. CS majors could be expected to address problems that range from the analysis of experimental imaging data to visualization of *in vivo* chemical reactions.

APPENDIX E

Sample Program with Linguistics as the LAS discipline.

Hours	Requirements
30	Computer Science Core
	CS 125, Intro to Computer Science (4 hours)
	CS 173, Discrete Structures (3 hours)
	CS 225, Data Structures (4 hours)
	CS 231, Computer Architecture I (3 hours)
	CS 241, System Programming (4 hours)
	CS 242, Programming Studio (3 hours)
	CS 373, Theory of Computation (3 hours)
	CS 421, Programming Languages & Compilers (3 hours)
	CS 473, Fundamental Algorithms (3 hours)
12	Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements)
	Math 221, Calculus I (4 hours)
	Math 231 Calculus II (3 hours)
	Math 225, Introductory Matrix Theory (2 hours)
	Stat 100, Statistics (3 hours)
Min of 24 hours	Supporting coursework.
	An additional 24 hours of coursework in a Liberal Arts and Sciences discipline or in a coherent Liberal Arts and Sciences interdisciplinary field chosen in consultation with an advisor. Must include at least 12 hours at the 300- or

	400-level. An approved LAS major may be used to satisfy this requirement. [Linguistics Example]
12	Core Courses: LING 100 - Intro to Language Science (3 hours) LING 250 – Language Diversity in the USA (3 hours) LING 225 – Elements of Psycholinguistics (3 hours) LING 270 - Language, Technology & Society (3 hours)
12	Students can choose courses in one of the following thematic areas: Speech Processing Computational Linguistics
	Speech Processing (12hours): LING 302 - Elements of Phonology (3 hours) LING 401 – Intro to General Phonetics (3 hours) ANTH 470 - Mind, Culture and Society (Same as LING 470) (3 hours) LING 4xx - Seminar in Linguistic Analysis (Corpus Methods for Phonology and Phonetics an example topic)- to be developed (3 hours)
	Computational Linguistics (12 hours): LING 301 - Elements of Syntax (3 hours) LING 307 - Elmts Semantics & Pragmatics (3 hours) LING 406 - Intro to Computational Ling (3 hours) One of the following: LING 4xx - Topics in Computational Linguistics; to be developed (3 hours) LING 4XX - Human and Machine Translation – to be developed (3 hours)
Total of 66 hours (minimum)	

Background Information:

The program will bring together students and faculty interested in different aspects of the computer- natural language relationship – i.e., studying the cognitive aspects of natural languages;

endowing computers with human-like behavior and understanding of spoken and written natural language; and designing computer software and interfaces that work well with human users, using natural language communication.

Students will be exposed to the tools of both disciplines -- formal methods, philosophical analysis, computer programming, and empirical research -- with the aim of being able to apply the appropriate tool(s) required by the field. Statistics from a similar program at Berkeley, for example, show that alumni of such a program are very successful in landing jobs in various occupations, including natural language software design and applications, teaching and research, law, medicine, and public service (i.e., <http://symsys.stanford.edu/>).

Together with the Computer Science Department and the Beckman Institute, the Linguistics department houses a variety of research labs, reading groups, and informal workshops on computational linguistics and speech processing. We also have close ties with a wide variety of companies working on computational linguistics applications. For more information, see the [Semantic Frontier Group](#), [Cognitive Computation Research Group](#), the [Speech Prosody](#) and [Speech Dynamics Labs](#), the [Phonetics and Phonology Lab](#), as well as the [Second Language Acquisition and Bilingualism Lab](#) and the [Center for Translation Studies](#). Thus, we anticipate that existing resources within CS and LAS will be sufficient to address student job placement assistance.

Additional courses may be added as they are approved. For example, besides the basic courses for these thematic areas, we can also offer cutting edge seminars under seminars at the 400 level (to be developed) which can be co-taught by 2-3 professors in Linguistics and/or Computer Science. Such topics might include: History of Computational Linguistics, Extracting Social Meaning and Sentiment, Computational Linguistics Applied to the Social Sciences, Natural Language Understanding.

This model has proved to work very well at Stanford, attracting a large number of students. This trend has also been noticed at UIUC in the last 5 years: more and more undergraduate students in Computer Science are taking the speech and language processing courses offered by the Linguistics department. Moreover, such a program has the potential to encourage CS female students indirectly, by offering a combination of a programming course sequence and along with 'hands on' experience with computer systems in real natural language applications, an area preferred by women. The innovative aspect of the program is its focus on relating computers to language, technology, and society where the combination has potential for great impact.

The thematic areas component also allows CS majors to pursue related interests in line with their career goals. Students are strongly encouraged to get involved in undergraduate research through independent studies and funded research experiences, with the goal of learning from the UIUC CS and LAS internationally recognized scholars outside the classroom and participating in the exciting quest for new contributions to the field.

Office of the Provost and Vice Chancellor
for Academic Affairs

Swanlund Administration Building
601 East John Street
Champaign, IL 61820



January 11, 2012

Gay Miller, Chair
Senate Committee on Educational Policy
Office of the Senate
228 English Building, MC-461

Dear Professor Miller:

Enclosed is a copy of a proposal from the College of Liberal Arts and Sciences to establish a unique program which pairs the Computer Science major in LAS with a variety of other extant LAS majors. In addition to seeking approval for the proposed major's structure, this proposal seeks approval of four initial pairings.

BSLAS in:

Computer Science and Anthropology
Computer Science and Astronomy
Computer Science and Chemistry
Computer Science and Linguistics

This proposal has been approved by the Committee on Courses and Curricula in the College of Liberal Arts and Sciences. It now requires Senate review.

Sincerely,

A handwritten signature in cursive script that reads "Kristi A. Kuntz".

Kristi A. Kuntz
Assistant Provost

KAK/njh

Enclosures

c: A. Elli
S. Leigh
D. Musumeci
R. Rutenbar
C. Tucker

UNIVERSITY OF ILLINOIS
AT URBANA - CHAMPAIGN

Office of the Dean
College of Liberal Arts and Sciences
294 Lincoln Hall
702 South Wright Street
Urbana, IL 61801-3631



November 23, 2011

Kritsi Kuntz
Assistant Provost
Swanlund Administration Building
MC-304

Dear Kristi:

The Committee on Courses and Curricula, Dean's Cabinet, and Executive Committee on behalf of the Faculty of the College of Liberal Arts and Sciences has voted to approve the following proposal:

Establish the Bachelor of Science in Liberal Arts and Sciences Degree (BSLAS) in Computer Science and (LAS discipline)

Please address all correspondence concerning this proposal to us. This proposal is now ready for review by the Senate Educational Policy Committee for proposed implementation in Fall 2013.

Sincerely,

Steven R. Leigh
Associate Dean

Diane Musumeci
Associate Dean

enclosure

C: Professor Rob A. Rutenbar
Associate Dean Charles Tucker III

Elli, Amy Lawrence

From: Leigh, Steven R. <sleigh@illinois.edu>
Sent: Monday, August 01, 2011 3:18 PM
To: Elli, Amy Lawrence
Subject: Fwd: CS+X progress

Dear Amy,
Here is a support letter from Rob Rutenbar in CS for what should be the final CS+X curriculum proposal.
Steve

Begin forwarded message:

From: "Rutenbar, Robin A" <rutenbar@illinois.edu>
Subject: Re: CS+X progress
Date: July 26, 2011 3:03:50 PM CDT
To: "Leigh, Steven R" <sleigh@illinois.edu>, "Pitt, Leonard B" <pitt@illinois.edu>
Cc: "Musumeci, Diane" <musumeci@illinois.edu>

Steve

Thanks for the most recent copy of our joint proposal for the "CS+X" degree in LAS. Besides some minor changes we've already communicated, the current version of the proposal looks quite good. We are looking forward to submitting this with you in the fall to the Ed Pol committee.

Thanks again for all the hard work on the LAS side help see with one through to this critical next step. It's been a great experience partnering with LAS on this exciting project.

Cheers
-rob

Rob A. Rutenbar
Bliss Professor and Head
Department of Computer Science
University of Illinois at Urbana-Champaign
2232 Siebel Center, MC-258
201 N. Goodwin Ave, Urbana IL 61801
Tel 217-333-3373
rutenbar@illinois.edu
Assistant: Karen Stahl (kstahl@illinois.edu)

proposal to
make sure we're all in complete agreement. Actually, I don't think
we've
seen the proposal in a while - since we've passed on the basic
structure and
course requirements. Would it be possible for you to forward it in
whatever
state it is in, with any supporting documentation, explanation,
justification, etc?

Hope you are summering well, and in particular, that you are still in
the
phase where the summer spreads out in front of you with unlimited
potential,
as opposed to the following phase in which the start of the fall
semester
looms and you wonder how on earth you managed to get so little done.

... Lenny

--

Leonard Pitt
Professor and Director of Undergraduate Programs
Department of Computer Science
University of Illinois
pitt@illinois.edu

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

RECEIVED LAS
FEB 14 2012
Office of the Dean

University Library
Office of Dean of Libraries
and University Librarian
230 Main Library, MC-522
1408 West Gregory Drive
Urbana, IL 61801



February 9, 2012

Steven Leigh
Associate Dean
294 Lincoln Hall MC-488
702 South Wright Street
Urbana, IL 61801

Dear Dr. Leigh:

Thank you for giving the University Library the opportunity to review the College of Liberal Arts and Science's proposal to the Senate Committee on Educational Policy to establish a Bachelors of Science in Liberal Arts and Science (BSLAS) Degree with a major in Computer Science and (LAS discipline). Based upon the proposal that we reviewed, we anticipate that there will be little to no impact on the Library with respect to collections. In terms of operational impact, we consider this to be minimal as well. Indeed, it is our opinion that there are actually good opportunities for faculty or students involved in the program to take advantage of services offered by our personnel in the Scholarly Commons or elsewhere in the Library.

Sincerely,

Paula Kaufman
Juanita J. and Robert E. Simpson
University Librarian and Dean of Libraries

c: Thomas Teper
Bill Mischo
Diane Musumeci
Rob Rutenbar
Sarah Shreeves

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Anthropology
601 S. Davenport Ave.
105 Davenport Hall, MC 111
61824-2100 Urbana, IL
USA



January 19, 2012

Steven Leigh, Associate Dean
College of Liberal Arts and Sciences
University of Illinois at Urbana-Champaign

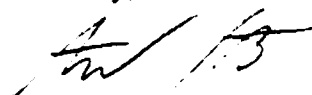
Re: Anthropology's participation in proposed joint Computer Science/LAS degrees

Dear Steve,

I am writing to indicate our strong interest in this proposal. The potential fit with our program in Biological Anthropology is especially exciting. I look forward to working with you to define the ways Anthropology might participate in this initiative.

If I can provide you with any additional information concerning our support for this proposal, please do not hesitate to contact me.

Sincerely,



Andrew Orta
Associate Professor and Head
email: aorta@illinois.edu

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN



Department of Astronomy

College of Liberal Arts and Sciences
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Jan. 16, 2012

Prof. Steven R. Leigh, Associate Dean
College of Liberal Arts and Sciences

Dear Steve,

I write in support of the proposal to expand the BSLAS in Computer Science to include additional fields. Astronomy, particularly astronomy at Illinois, is tightly linked to computational science. The expansion of the CS BSLAS would open up interesting opportunities for undergraduates interested in continuing in astronomical research, training for technical specialties within astronomy, or simply expanding their horizons beyond CS. The proposal has my full support and the full support of the Department's Curriculum Committee.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Charles F. Gammie'.

Charles F. Gammie
Professor and Chair of Astronomy
Professor of Physics

Elli, Amy Lawrence

From: Leigh, Steven R
Sent: Thursday, January 19, 2012 2:26 PM
To: Elli, Amy Lawrence; Musumeci, Diane; Rich, Lucille S
Subject: Fwd: Support for CSE + LAS X

Chemistry support letter.

Begin forwarded message:

From: "Steven C. Zimmerman" <sczimmer@illinois.edu>
Subject: **Support for CSE + LAS X**
Date: January 19, 2012 9:28:06 AM CST
To: "Leigh, Steven R" <sleigh@illinois.edu>

Hi Steve L.,

I am writing to reiterate my support for the BS LAS degree in Computer Science and Chemistry. As you know, the proposal is to establish the BS LAS degree in Computer Science and several disciplines within LAS. I imagine Chemistry to be a significant partner in this CS + LAS X - i.e., X = Chem and X > 0. We have several theoretical chemists who specialize in writing code for research projects so it is a natural fit for student at the interface of computational chemistry and computer sciences. Specific areas of interest would be development of simulation models of chemical and chem-biological processes (protein folding, cell modeling, drug design, catalyst design, reaction optimization, etc.).

Let me know if you need more information or details on our support.

Steve Z.

Steven C. Zimmerman
Head and Roger Adams Professor
Department of Chemistry

Ph: 217.333.5071
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Assistant: Alison Jordan-Frost
Ph: 217.333.5071
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On Jan 18, 2012, at 1:57 PM, Leigh, Steven R wrote:

Elli, Amy Lawrence

From: Yoon, Hye Suk James
Sent: Friday, January 20, 2012 10:02 AM
To: Leigh, Steven R; Musumeci, Diane; Elli, Amy Lawrence
Cc: Cole, Jennifer S; Bhatt, Rakesh Mohan; Girju, Corina R
Subject: CS + Linguistics Endorsement

Dear Dean Leigh:

The Department of Linguistics strongly supports the College of Engineering request for the expansion of the BLAS in Computer Science major. The expansion will better prepare Computer Science (CS) majors to meet increased market demand in the areas of speech and language technology, as well as employment opportunities for computation in traditional liberal arts and sciences fields. The addition of a humanities component to the major will also offer students novel perspectives in interdisciplinary work allowing them to pursue a graduate degree in a wide variety of fields such as Social Media, Computational Linguistics / Speech and Language Processing, Digital Humanities, etc.

Historically, many of our courses have been attended by a high percentage of CS undergraduate and graduate students. Moreover, the Department of Linguistics has strong ties with the College of Engineering in courtesy faculty appointments, faculty research collaborations, grants, and in graduate student mentoring and advising. The proposed major will nicely complement multiple related majors and programs in Computer Science, such as Artificial Intelligence and Data and Information Systems. It will bring together students and faculty interested in different aspects of the computer-natural language relationship.

We believe that Linguistics is an ideal department to participate in this degree program. We are very enthusiastic about this initiative and fully support it.

Sincerely,

James Hye Suk Yoon

Professor and Head
Department of Linguistics
University of Illinois, Urbana-Champaign
Email: jyoon@illinois.edu