ITEM
Request for authorization to re-title Montana State University’s Computer Science Department as the School of Computing

THAT

Montana State University’s Computer Science Department be re-titled as the School of Computing

EXPLANATION

The term **School of Computing** conveys the pervasive nature of computing in today’s world much better than the term **Computer Science Department** does. The new title will provide numerous advantages:

- Because the new name better conveys the reality of computing in today’s world, it should attract more students to study computing-related topics, providing much needed additional talent to Montana’s high tech industry.
- In the future, a School of Computing is well positioned to offer new academic opportunities to students such as a B.A. in Computer Science, a Data Science certificate and/or innovative multidisciplinary courses. This will better prepare students for the variety of computing careers and opportunities that await them.
- In the future, a School of Computing is well positioned to serve as a connector for researchers with computational needs and researchers with computational expertise. Because research projects increasingly require computational expertise, the MSU and MUS research enterprise can be better served. Important new interdisciplinary, computationally intensive, research hubs on topics such as data science could be located in the School of Computing.

ATTACHMENTS

- Attachment #1 - Academic Proposal Request Form
- Attachment #2 - Modified Curriculum Proposal Form
- Attachment #3 - Letter of Support from Lance Fortnow, Chair of the School of Computer Science, College of Computing, Georgia Tech
- Attachment #4 - Letter of Support from the Montana High Tech Business Alliance
Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

Item Number: XXX-XXXX-XXXXX
Meeting Date: ________________________________

Institution: Montana State University
CIP Code: ________________________________

Program Title: School of Computing

Please mark the appropriate type of request and submit with an Item Template and any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit the Academic Affairs Handbook.

__ A. Notifications:

Notifications are announcements conveyed to the Board of Regents at the next regular meeting.

1a. Placing a program into moratorium (Document steps taken to notify students, faculty, and other constituents and include this information on checklist at time of termination if not reinstated)

1b. Withdrawing a program from moratorium

2. Intent to terminate an existing major, minor, option or certificate – Step 1 (Phase I Program Termination Checklist)

3. Campus Certificates- Adding, re-titling, terminating or revising a campus certificate of 29 credits or less

4. BAS/AA/AS Area of Study

__ B. Level I:

Level I proposals are those that may be approved by the Commissioner of Higher Education. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the Board.

1. Re-titling an existing major, minor, option or certificate

2. Adding a new minor or certificate where there is a major or an option in a major (Curriculum Proposal Form)

3. Revising a program (Curriculum Proposal Form)

4. Distance or online delivery of an existing degree or certificate program

5. Terminating an existing major, minor, option or certificate – Step 2 (Completed Program Termination Checklist)

__ Temporary Certificate or AAS Degree Program

Approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the proposal to go through the normal Level II Proposal approval process.
Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

C. Level I with Level II Documentation:

This type of proposal may go to the Board as a Level I item if all Chief Academic Officers are in agreement. If consensus among the Chief Academic Officers is not reached, however, the item will go to the Board as a Level II request.

1. Consolidating existing programs and/or degrees (Curriculum Proposal Form)

D. Level II:

Level II proposals require approval of the Board of Regents. These requests will go to the Board in a two-meeting format, the first being as informational and the second as action.

1. Re-titling a degree (ex. From B.A. to B.F.A)

2. Adding a new minor or certificate where there is no major or option in a major (Curriculum Proposal Form)

3. Establishing a new degree or adding a major or option to an existing degree (Curriculum Proposal Form)

4. Forming, eliminating or consolidating a college, division, school, department, institute, bureau, center, station, laboratory or similar unit (Curriculum Proposal Form or Center Proposal Form, except when eliminating or consolidating)

5. Re-titling a college, division, school, department, institute, bureau, center, station, laboratory or similar unit

Specify Request:

Request for authorization to re-title Montana State University’s Computer Science Department as the School of Computing.
Montana Board of Regents  
CURRICULUM PROPOSAL FORM  

1. Overview  

Montana State University’s Computer Science Department requests authorization to be re-titled as the School of Computing.

Note: At Associate Provost Ron Larsen’s recommendation, the questions on the Curriculum Proposal Form have been slightly modified to provide supporting information for this request.

2. Provide a one paragraph description. Be specific about what degree, major, minor or options are provided.

The School of Computing will continue to offer the same degrees and options that the Computer Science Department does, namely

- A Ph.D. in Computer Science
- An M.S. in Computer Science
- A B.S. in Computer Science (professional option and interdisciplinary option)
- A non-teaching minor in Computer Science

The School of Computing will continue to serve the same student populations that the Computer Science Department does. According to the Spring 2015 Registrar’s Report (Report G, Part A), the Computer Science Department serves 371 CS students (303 undergraduates, 18 post-bacs, 24 master’s students and 26 doctoral students). In addition, the CS Department also serves non-majors and other constituents.

3. Need

A. To what specific need is the institution responding by re-titling the Computer Science Department?

We live in a collaborative, interdisciplinary world where computing is pervasive. The term School of Computing captures this reality more effectively than the term Computer Science Department. The term School of Computing provides immediate benefits, as well as a shell for future growth and opportunities. Some of the immediate and potential future benefits include

- A more inclusive name will attract more MSU students to study computing. In today’s world, a student who gains a richer understanding of computing will benefit both professionally and personally.
- Montana’s computing industry, where demand for students with computing skills far exceeds supply, will be better served by having a larger and more diverse computing talent pool. In turn, this will contribute to growth in Montana’s economy. A letter of support is attached from the Montana High Tech Business Alliance.
- A more inclusive name will enable our organization to better connect researchers inside and outside of MSU who have either computational needs or computational skills. This will benefit the MUS research enterprise. As one recent example that illustrates the multidisciplinary research potential, two computer science faculty are co-PIs on Barry Jacobsen’s recently funded MREDI project entitled Increasing Profitability by Improving Efficiency of Montana’s Farm and Ranch Lands.
- A School of Computing could house exciting new degrees and educational opportunities. For example, a B.A. in Computer Science fits well into a School of Computing.
- A School of Computing will shine a light on computing minors, attracting more students from other...
majors to acquire computational skills.

- A School of Computing could house exciting new multidisciplinary research hubs in strategic areas such as data science.
- A School of Computing could offer joint appointments to multidisciplinary researchers whose expertise includes computing. Because many faculty have multidisciplinary research interests, this could help MSU attract high caliber faculty members.

Other top universities have recognized the strategic importance of a name that better captures the broad aspects of computing. Here are a few examples:

- The University of Utah has a School of Computing, [http://www.cs.utah.edu/](http://www.cs.utah.edu/)
- Carnegie Mellon has a School of Computer Science, [https://www.scs.cmu.edu/](https://www.scs.cmu.edu/)
- Georgia Tech has a School of Computer Science, [http://www.scs.gatech.edu/](http://www.scs.gatech.edu/). A letter of support is attached from Lance Fortnow, who is chair of Georgia Tech’s School of Computer Science.
- Drexel University has a College of Computing & Informatics, [http://drexel.edu/cci/](http://drexel.edu/cci/)

B. How will students and any other affected constituencies be served by the re-titling?

Because this is a name change, affected constituencies will continue to be served as before.

C. What is the anticipated demand for degrees offered by a School of Computing? How was this determined?

Since the Computer Science Department already exists, the current demand is known. During Spring Semester 2015, 371 majors and graduate students were served (see response to Question 2 above for more detailed information), as well as non-CS students. Since 2009, nationwide enrollments in Computer Science have grown at a rate of 10%-15% per year, due to the plentiful opportunities for students with computing knowledge. At Montana State University, enrollments have risen from a low of 179 in Fall Semester 2008 to 371 in Spring Semester 2015. These enrollments are projected to continue rising in the foreseeable future and can be accelerated by an organizational name change that better captures both the depth and breadth of computing.

4. Institutional and System Fit

A. What is the connection between the re-titled program and existing programs at the institution?

The School of Computing would replace the Computer Science Department and assumes all of its former functionality.

B. Will approval of the re-titled program require changes to any existing programs at the institution? If so, please describe.

No changes will be required.

C. Describe what differentiates this re-titled program from other, closely related programs at the institution (if appropriate).

Because the School of Computing is a name change for the Computer Science Department, our organization is already differentiated by providing degrees (Computer Science B.S., M.S. and Ph.D.) and opportunities (a CS
minor, computing coursework, etc.) that other programs do not.

The re-titling signals that beyond the traditional role of a Department in academics and educating students, a School of Computing embraces and expands the role of the University in addressing the needs of our partners in both industry and the public sector. A School of Computing will serve a broader public as they increasingly seek computing-related research and scientific assistance. Developing new partnerships will serve the state of Montana well and will better prepare our students for future employment and other endeavors.

D. How does the re-titled program serve to advance the strategic goals of the institution?

The re-titled program will contribute to several of Montana State University’s strategic goals.

- **Learning:** MSU prepares students to graduate equipped for careers and further education. In Montana and nationwide, computer science degrees at all levels are among the most in-demand degrees. In 2015 according to [http://www.forbes.com/sites/susanadams/2014/11/12/top-degrees-for-getting-hired-in-2015/](http://www.forbes.com/sites/susanadams/2014/11/12/top-degrees-for-getting-hired-in-2015/), Computer Science is the third most demanded undergraduate degree, the second most demanded M.S. degree and the seventh most demanded Ph.D. degree. Longer-term, a School of Computing will explore creating additional degrees (such as a B.A.) and options.

- **Discovery:** MSU will raise its national and international prominence in research, creativity, innovation and scholarly achievement, and thereby fortify the university’s standing as one of the nation’s leading public research universities. Research increasingly requires computing or data science expertise to be successful. The broader interdisciplinary reach of a School of Computing will help it serve as a connector between researchers with computational needs and researchers with computational expertise. This interdisciplinary reach can help attract high caliber researchers to MSU.

- **Engagement:** Members of the Montana State University community will be leaders, scholars and engaged citizens of their local, national and global communities, working together with community partners to exchange and apply knowledge and resources to improve the human prospect. The broader interdisciplinary reach of a School of Computing will provide more opportunities for engagement with a broader range of constituents.

- **Integration:** By integrating learning, discovery and engagement, and by working across disciplines, the MSU community will improve the world. A School of Computing will be a highly interdisciplinary organization, leading to more opportunities that integrate learning, discovery and engagement.

- **Access:** Montana State University is committed to widening access to higher education and ensuring equality of opportunity for all. The number of students seeking computer science degrees at MSU more than doubled from Fall Semester 2008 to Spring Semester 2015. According to the most recent 2014 Taulbee Survey, [http://cra.org/wp-content/uploads/2015/06/2014-Taulbee-Survey.pdf](http://cra.org/wp-content/uploads/2015/06/2014-Taulbee-Survey.pdf), nationwide enrollments in computer science have risen for seven consecutive years and last year rose by 20%. A School of Computing will better serve the rapidly increasing number of students interested in computing. In addition, the interdisciplinary nature of a School of Computing will likely attract more underrepresented populations such as women, who last year earned 14.1% of CS degrees nationwide.

E. Describe the relationship between the re-titled program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed re-titling at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the
substantially duplicated programs, please include the agreement(s) as part of the documentation.

There is no other School of Computing in the MUS. However, other Computer Science Departments exist because of the importance of computing knowledge in today’s world. Four year degree granting Computer Science Departments can be found at The University of Montana (offering B.S. and M.S. degrees) and Montana Tech (offering a B.S. degree). No new duplication results from the re-titling of Montana State University’s Computer Science Department.

5. Re-titling Details

A. Provide a detailed description of the School of Computing’s curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents’ Policy 301.12 have been met.

The School of Computing will continue to offer the same computer science degrees and minor that the Computer Science Department currently does. This information already appears in the MSU catalog at the following two URLs: http://catalog.montana.edu/graduate/engineering/computer-science/ and http://catalog.montana.edu/undergraduate/engineering/computer-science/

B. Describe the planned implementation of the re-titled program, including estimates of numbers of students at each stage.

The name change would take effect for Fall Semester 2016. As of Spring Semester 2015, 371 students are pursuing degrees in Computer Science (see the answer to Question 2 for more details). Given the upward trend over the past seven years, the anticipated number of students pursuing degrees in Computer Science could be 10-20% higher by Fall Semester 2016.

6. Resources

A. Will additional faculty resources be required to implement this re-titling? If yes, please describe the need and indicate the plan for meeting this need.

No additional faculty resources are required to implement the name change.

B. Are other, additional resources required to ensure the success of the re-titled program? If yes, please describe the need and indicate the plan for meeting this need.

A School of Computing can absorb the Computer Science Department’s current functionality without additional resources.

7. Assessment

How will the success of the re-titled program be measured?

Metrics that can be used to measure the success of a School of Computing include

- Research expenditures
- Range of research collaborators
- New research hubs/centers/institutes that are located in the School of Computing
- Number of students earning the B.S., M.S. and Ph.D. degrees in Computer Science
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- Number of students earning minors in Computer Science
- New curricular and degree opportunities

8. Process Leading to Submission
Describe the process of developing and approving the re-titled program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.

For the past several years, the Computer Science Department has recognized the need for a name that better conveys the broad range of computing to people outside our organization. We have engaged in numerous discussions and solicited feedback by sharing a draft of this document with the following constituents.

- The MSU Computer Science Department’s Advisory Board, http://www.cs.montana.edu/industry-advisory-board.html.
- The MSU Computer Science Department’s faculty and staff, http://www.cs.montana.edu/personnel.html.
- The MSU Computer Science Department’s M.S. and Ph.D. students.
- The MSU Computer Science Department’s undergraduates in our ACM and AWC student clubs.
- The 584 members of the MSU Computer Science Department’s LinkedIn Alumni Network.
- Kenning Arlitsch, MSU Dean of the Library.
- Kregg Aytes, MSU Dean of the Jake Jabs College of Business and Entrepreneurship.
- Jeff Braun, outgoing Montana Tech Computer Science Department Head.
- Anne Camper, MSU Associate Dean for Faculty and Administration in the College of Engineering.
- Christine Foreman, MSU Associate Dean for Student Success in the College of Engineering.
- Tomas Gedeon, outgoing MSU Mathematical Sciences Department Head.
- Brett Gunnink, MSU Dean of the College of Engineering.
- Jeff Heys, MSU Chemical and Biological Engineering Department Head.
- Rob Maher, MSU Electrical and Computer Engineering Department Head.
- Bob Mokwa, incoming MSU Mathematical Sciences Department Head.
- Dan Miller, MSU Mechanical and Industrial Engineering Department Head.
- Doug Raiford, University of Montana Computer Science Department Chair.
- Jerry Sheehan, MSU Chief Information Officer.
- Jerry Stephens, MSU Civil Engineering Department Head.
- Michelle van Dyne, incoming Montana Tech Computer Science Department Head.
- And others.
August 18, 2015

To whom it may concern:

I strongly support the proposal by MSU Computer Science chair John Paxton and his team to establish a School of Computing at Montana State.

I chair the School of Computer Science at the Georgia Institute of Technology, part of the University System of Georgia. The School of Computer Science sits within a College of Computing, separate from Engineering. The college has three schools, Computer Science, Interactive Computing, and Computational Science and Engineering. We have 35 tenure-track faculty in the School of Computer Science and about 90 overall in the college for approximately 1800 undergraduate majors.

Computer science has grown to be much more than a single discipline. Not only does the field develop the skills to produce computers that are faster, smarter, reliable, secure and smartly connected, computer science also explores how people and society connect with computers as well as the main tools to deal with the enormous growth of data from cloud computing and scientific experimentation and simulations. Virtually every job requires computer skills and having a few computer courses can make an engineer or an English major far more valuable to potential employees. 25 years ago Georgia Tech recognized the value of computing as a discipline worthy of its own college and has become a world leader in the field as a result and drawing industry from start-ups to Fortune 500 companies coming to the Atlanta region.

I had the privilege to visit the Montana State CS department in May and already see recent growth in the city and a synergy between a growing tech industry in Bozeman and the university. I had extensive conversations with John Paxton and several CS faculty and came away impressed with their leadership and vision. The demand in computer science from both industry and students has greatly increased in the past few years and all indications are that they will continue to increase in years to come. Bozeman and the state of Montana cannot continue to increase their high tech presence without a corresponding increase in the talent pool produced from Montana State.

Transitioning the department of computer science at Montana State to a school of computing is the first step in recognizing the value of computer science and computing across the campus, in Bozeman and the whole of Montana.

Sincerely,

Lance Fortnow
Professor and Chair
AUGUST 14, 2015

To Whom It May Concern:

The Montana High Tech Business Alliance (MHTBA) is delighted to support the proposal put forth by Montana State University’s Computer Science Department to change its name to the School of Computing.

The MHTBA was formed in 2014 and includes more than 200 member companies. The economic growth of our members is hampered by a shortfall of graduates with computing knowledge. A February 2015 study by The University of Montana’s Bureau of Business and Economic Research shows that MHTBA members have the capacity to add 400 net new jobs in 2015. Yet, the entire MUS system produced less than 100 computer science graduates in academic year 2014-2015.

An immediate benefit of the name change is that

- Computing is ubiquitous in today’s world. The term School of Computing captures both the breadth and depth of computing. In contrast, the term Computer Science Department only captures the technical depth aspect. By changing the name to one that better conveys computing’s accessibility, more students will be attracted to learn about computing. This in turn will lead to more students earning in-demand computing degrees, minors and certificates.

After the name change takes place, there are other important long-term benefits that can be realized:

- A School of Computing provides a venue for broader, more multidisciplinary endeavors such as a Data Science Center. In contrast, a Computer Science Department does not. These exciting new opportunities will attract more students to computing. In addition, these opportunities will help recruit quality faculty and broaden the number of potential collaborative researchers.

- A School of Computing provides a venue for broader, more interdisciplinary academic opportunities. For example, a B.A. in Computer Science could be offered by a School of Computing. As another example, a Facebook data mining course could be developed through the School of Computing and jointly taught by a sociologist and a computer scientist. These new academic opportunities will stimulate more students to undertake computing-related degrees, minors and certificates.
In conclusion, a School of Computing will create a virtuous cycle that results in economic growth for the state of Montana. More computing talent will attract more high tech companies to locate in Montana. More high tech companies will provide a broader set of opportunities for employees, attracting even greater numbers of students to computing fields.

Thank you for your consideration of this important proposal.

Sincerely,

Christina Henderson
EXECUTIVE DIRECTOR