EL CAMINO COLLEGE MATHEMATICAL SCIENCES
COMPUTER SCIENCE ADVISORY BOARD MEETING
May 20, 2016

Present: Leslie Aaronson, Edwin Ambrosio, Carl Broderick, Greg Fry, Massoud Ghyam, Arturo Hernandez, Ray Huffacker (Raytheon), Winston Kwong (John Deere), Matthew Mata, Mitchell Middler, Solomon Russell, Jean Shankweiler, Jacquelyn Sims, Satish Singhal, Dave Smallberg, Linda Ternes, Nidhi Tilak, Claudio Vilchis (ITS)

NEW HIRES

Dean J. Sims recognized the new full-time Computer Science instructor, Edwin Ambrosio. Mitchell Middler and Nidhi Tilak will also be joining the Computer Science Department as adjunct instructors.

REVIEW OF MEETING MINUTES

CS Advisory Board reviewed the meeting minutes from the November 6, 2015 meeting. M. Ghyam motioned to approve minutes with no changes. E. Ambrosio seconded the motion. Majority voted to approve the November 6, 2015 meeting minutes with no changes.

Students are starting to realize the potential of Computer Science over Computer Information Systems, so enrollment for CIS has declined while the enrollment for CS increases.

Dean J. Sims informed the board that as of now, the college is responsible for providing computers for the lab component to establish equal playing field for students that do not have laptops to bring to class.

L. Ternes discussed the possibility of purchasing two laptop carts to convert from a lecture room to a lab room throughout the day.

HIGHLIGHTS FROM RESEARCH PROJECT: TRANSFERRING FOR A COMPUTER SCIENCE BACHELOR'S DEGREE

A Google funded report regarding students transferring from a community college to complete a 4-year Computer Science degree was provided by Lou Ann Lyon, Senior Research Associate at ETR.

Google is aiming to diversify their work force. They noticed community colleges are more diverse than universities and wanted to determine the barriers in transferring to universities.

L. Lyon provided preliminary results to give the board an opportunity to give feedback or ask questions. L. Lyon would like the report to be useful to both community colleges and industry. The final report will highlight things industry and community colleges can do to help diversify the workforce.

CS students at ECC were surveyed. From that pool, underrepresented students (students that self-reported as African-American men, Latino men, and all women) were given a more in-depth interview for a qualitative study. All of the students that were interviewed have the intention to transfer and complete their degree in Computer Science.

The qualitative data came from 24 semi-structured interviews. L. Lyon asked a list of questions to students that volunteered to participate. L. Ternes recommended that a note be included on how students were selected.

The qualitative data was categorized into four main sections. In the first category, students talk about struggles in figuring out what classes they need to take as they prepare for transfer. Students feel like their progress is delayed if they can't get into prerequisite classes. They discussed the struggles with www.assist.org, the requirements for different schools and struggles with counselors. Essentially, this category focused on issues with students discovering the pathway to transfer.

The second category discusses getting through classes. Students reported that instructors were very helpful and they are aware that tutoring help is available. Students reported that a couple things that delayed their progress include dropping classes so they don't ruin their GPA and issues with all of the non-CS related math classes needed.

The third category was related to financials as they navigate through community college to a university. Students discussed financial worries once they transfer. This is also tied to their family life as many of these student help to support their families.

The last category is related to what students are looking for once they earn their degree and start careers. Students have only a vague idea about what they want to do with their degree or what their day-to-day tasks will be once they enter their career. There are misunderstandings of the advantages of a Bachelor's degree. One way this may be resolved is to have industry employees come into the classroom and discuss salaries, job possibilities and the benefit of a Bachelors.

L. Lyon discussed that students reported they were aware of tutoring opportunities, but the students surveyed prefer working on their own. Also, some students are too shy to walk into the tutoring center and ask for help.

S. Russell began peer programing this year which helps students rely on each other instead of working solely on their own. S. Singhal has tutors come into his classroom and introduce themselves. Building a community inside of the class and ensuring students are engaged are key. It may slow down the curriculum but it benefits the students.

Dean J. Sims discussed the strict Trigonometry prerequisite for all CS classes (except CS 40). Students are overwhelmed by the math track to meeting this prerequisite.

S. Russell is working on a new curriculum that may also address study and preparation skills. Beauty and Joy of Computing (BJC) delves into the seven big ideas of computing and gives students that do not know computing a survey course. BJC is developed as a course for non-majors and would not require a Trigonometry prerequisite.

L. Lyon will write the final report and Google will have a media launch to make this information publicly available. This will be done in the next month or two. Further feedback should be directed to L. Lyon by mid-June.

CURRICULUM

To date, we have four full-time CS instructors. Four years ago, we had only one. This shows there is a demand for CS courses. The department has increased 50-60%.

We are considering a CS Methods course. The CS Methods course is geared towards teachers. It would be ideal for community colleges to offer some of the courses that provide teachers with a supplemental-authorization. This can help serve as a bridge to prepare for transfer courses.

CS Principles is another course we are considering. CS Principles does deal with programming so it would require an instructor to have a background in programming. A CIS instructor with experience with algorithm and the internet could potentially teach the course.

S. Singhal discussed the new Python course that will be offered during the spring semester. It is a user friendly program. The goal is for students to take this class and discover their own vision of CS.

W. Kwong discussed that in industry there is a blend of operations and development.

Cyber security is important right now and should be taught by CS. R. Huffacker discussed that if the department teaches cyber security in Business or databases, students would not get the big table information. He recommended that CS teach the principle databases and CIS teach administration databases.

CTEA GRANT APPLICATION

CTEA funding is available each year for department enhancements.

The CS Department’s main issue is lab capacity. Initially, the department was going to apply to convert a lecture room to a computer lab, however, that would account for a loss of 8-10 lecture sections.

The department decided to withdraw those plans from the CTEA application and instead will apply for laptop carts on next year’s CTEA application.

Dean J. Sims reconfirmed with the Advisory Board that it is important to keep a lab component for each CS class.

PARTNERSHIPS AND CS COURSES AT LOCAL HIGH SCHOOLS

The department is in talks with a couple of local high schools that would like us to bring our curriculum to their students.

We have partnered with Redondo Union High to offer CS 1 starting in the fall semester.

ECC TO HOST BEAUTY AND JOY OF COMPUTING TRAINING FOR K-12 COMPUTER SCIENCE INSTRUCTORS

S. Russell was contacted by instructors at Berkeley about hosting a professional development activity in July for 5-20 of their lead teachers. Teachers will be funded to attend.

This opportunity will give ECC more exposure and also create a relationship with Berkeley.

NEWLY PROPOSED COMMUNITY COLLEGE PARTNERSHIP TAX CREDIT– HOW CAN ECC PARTICIPATE

There are some new initiatives through the federal government regarding student interns. The department is looking into how ECC students can benefit.

NSF is offering small businesses grants to work with community college students and give them exposure through internships.

E. Ambrosio discussed the importance of having industry experience in the form of internships, as it gives students an advantage, teaches them to work in teams and in a professional environment. Internships provide great exposure and reinforce skills.

W. Kwong recommended adding real world application to the curriculum. For example, projects that focus on how to solve issues and how to apply their knowledge in problem solving. That is an important aspect during the hiring process.

R. Huffacker is more interested in the fundamentals when hiring (i.e. why/how things work).

In CS 30, students learn real world things like search engines and database design.

AP CREDIT AND CS COURSE EQUIVALENCY

The department has been reviewing AP credit and equivalency. If high school students pass the AP exam, the college gives them the credit. However, passing the AP exam should not give credit for CS 1.

The department will discuss this further in the fall.

ASSOCIATION FOR COMPUTING MACHINERY CHAPTER AT EL CAMINO COLLEGE

S. Singhal started an El Camino College Chapter of ACM (Association for Computing Machinery). There will be six general meetings per school year and students will be exposed to industry and instructor speakers and can also attend conferences. Speakers are welcome to discuss any CS topic. The theme for this year is the current state of affairs and future advances. ACM also plans to participate in the programming contest.

The next CS Advisory Board meeting will be in November 2016.

Agenda for Computer Science Advisory Board Meeting

Friday, May 20 at 11:30 a.m.

1. New Hire(s)
2. Review of meeting minutes
3. Highlights from Research Project: Transferring for a Computer Science Bachelor's Degree
4. Curriculum
5. CTEA Grant Application
6. New Computer Labs/Laptop Carts
7. Partnerships and CS Courses at Local High Schools
8. ECC To Host Beauty and Joy of Computing Training for K-12 Computer Science Instructors
9. Newly Proposed Community College Partnership Tax Credit – How Can ECC Participate
10. AP Credit and CS Course Equivalency
11. Local CS Degree
12. Association for Computing Machinery Chapter at El Camino College

El Camino College

Mathematical Sciences

Computer Science Advisory Board Meeting

November 6, 2015

Present: Leslie Aaronson, Edwin Ambrosio, Datuki Bonner (Raytheon), Carl Broderick, Greg Fry, Massoud Ghyam, Arturo Hernandez, Ray Huffacker (Raytheon), Kevin Judge (John Deere), Matthew Mata, Karlene Nguyen (MobilityWare), Brad Rumery (Sampra Energy), Solomon Russell, Greg Scott, Jacquelyn Sims, Satish Singhal

OVERVIEW OF WHERE THE CS PROGRAM IS HEADED

Computer Science is a vastly growing field. The department has a need for growth and expansion, both physically in terms of space as well as the curriculum. The department is seeking the advisory board's opinion on which way to grow.

CTEA GRANT AND THE ITEMS TO APPLY FOR

The department is currently offering seven computer science courses with 20 sections across those courses.

The fall 2015 CS classes have increased by 18% since fall 2014. In spring 2014, the department offered 14 sections of CS classes. In spring 2016, we will be offering 22 sections, which is a 57% increase from what was offered in spring 2014.

There is a need to offer more classes, but there is not enough computer lab space. The department is in a position to advocate for more resources in order to meet industry needs and transfer growth.

The CTEA Grant offers an option for funding department needs. The area of focus for our CTEA request will be to convert a classroom into a computer lab. The estimated cost for this is about $200,000 including wireless capacity.

Dean J. Sims requested the advisory board's opinion in terms of computer lab style, format, how many labs to request, and what is seen at other schools in terms of their needs.

Currently, the designated computer science lab has 23 computers, which is the ideal amount in terms of class size for CS instructors to effectively teach.

There have been issues with wireless capacity and software compatibility with students who bring their own laptops for use.

The technology needs of the campus are not being met.

Laptop carts have been used in the past, but when the warranty went out, ITS stopped supporting them. IPads have also been used in the past, but the wireless internet has not been reliable.

It is an option to add computer carts to the list of items we will request through CTEA. This would be a beneficial option as it helps avoid losing an entire classroom to a lab.

The demand for CS courses is growing tremendously, and can provide more apportionment for the college if that growth is supported.

It was confirmed that the department will apply for a classroom conversion, from lecture to lab, with the CTEA Grant. The department will also request laptop carts as an alternative option, and Surface Pro as a substitute to laptop carts.

Another option would be to purchase a wireless router and put it in the classroom. There is a method for extending the connectivity that carries the signal through the electric system. This wouldn't involve any structural issues.

The idea of authenticating those using the wireless internet is important to ITS. Ray Huffacker suggested having students set up in the VPN system. VPN is under the control of ITS so it would need their approval.

Karlene Nguyen recommended exploring external funding. Local companies may be more willing to provide a source of funding. It would be helpful to provide a short write up of the specific requests and connect with local companies.

The Unix class has been running on an old dell computer. The department was informed we would get a virtual server so students can have 24-hour access to the program. As of now, the virtual server has not been set up.

There is no support for Mac products on campus so CS instructors and students are not getting Mac exposure. ITS can support only one platform.

The IOS applications generate a majority of the revenue at Karlene Nguyen's company, so exposure to Mac is important. This is where the trend is going.

The advisory board recommendations will be brought to ITS.

Kevin Judge recommended keeping the Unix environment as it is a foundational topic.

NEW COURSE PROPOSALS

K. Nguyen recommended having a mobile applications class.

The current curriculum needs to be updated.

The department has been approved to hire one more CS faculty starting in fall 2016. The college is aware that we are growing, but they aren't aware of the capacity needs.

K. Nguyen recommended additional marketing to educate people more on what Computer Science is about. Leslie Aaronson recommended marketing on how the CS area applies and what students walk away with as far as job prospects.

The stereotype of the anti-social programmer is starting to go away.

Recommendation to start a CS Principles class as an introductory course to gain student interest. It can be a course that is built for non-majors and deals with big ideas i.e. the internet.

Recommendation to have more access friendly courses starting with Python and Ruby on Rails. This would be a great starting point as the language isn't as difficult as C++.

The department is having issues with Computer Information Systems on getting a new course on Python (CS 14) approved. The next step in the process is to go to the campus-wide College Curriculum Committee.

Part of the issue with the CIS Department is that they are losing their enrollment. The idea of merging Computer Science and Computer Information Systems is being tossed around.

Dean J. Sims believes that CS belongs with Math and Engineering, and would not be appropriate under the Business Division. When employees are looking for programmers, they often look at Math majors.

A majority of the CS students plan to transfer.

The CS Department needs more CS classes that are not on the STEM transfer route. The department is planning to offer Ruby on Rails by 2017 and also considering offering Java structures as well.

K. Judge recommended updating the title of CS 16 to Embedded Systems.

Computer security is probably the number one growing niche for the next 10 years.

K. Nguyen can provide a list of security items that would fall under CS vs. CIS, and highlight the differences.

M. Ghyam motioned to approved that CS stay within the Math Division. K. Nguyen seconded the motion. Nine were in favor, one abstention. The advisory board agreed that CS will stay within the Math Division.

S. Singhal motioned to approved that the advisory board endorses the new curriculum discussed. M. Ghyam seconded the motion. All were in favor.

FACULTY RECRUITMENT

The department is hiring a new full-time CS faculty in fall 2016.

Occasionally, the department considers an equivalent candidate if they have courses and relevant experience.

Dean J. Sims will inform the advisory board once the job announcement has been made.

ECC Computer Science Department New Courses

Computer Science Principles

Computer Science Principles offers a multidisciplinary approach to teaching the underlying principles of computation. The course will introduce students to the creative aspects of programming, abstractions, algorithms, large data sets, the Internet, cybersecurity concerns, and computing impacts. Computer Science Principles will give students the opportunity to use technology to address real-world problems and build relevant solutions. Together, these aspects of the course make up a rigorous and rich curriculum that aims to broaden participation in computer science.

CS Methods

This course will provide students with pedagogical and content knowledge and experiences to be effective computer science teachers in high school. Students will explore the topics of Computational Thinking Practices, collaborative learning, inquiry learning and how they relate to computer science education.

Mathematical Sciences

FALL 2016 SCHEDULE

August 27 - December 16, 2016

SEC NAME	Bldg Room	INSTR METH	Days Offered	START TIME	END TIME	Instructor
CSCI-1-0100	MBA 113	LAB	M W	8:00:00 AM	9:25:00 AM	Russell, Solomon
CSCI-1-0100	MBA 217	LEC	M W	9:35:00 AM	11:00:00 AM	Russell, Solomon
CSCI-1-0101	MBA 217	LEC	M W	9:35:00 AM	11:00:00 AM	Russell, Solomon
CSCI-1-0101	MBA 220	LAB	M W	11:10:00 AM	12:35:00 PM	Russell, Solomon
CSCI-1-0106	MBA 220	LAB	S	9:00:00 AM	10:25:00 AM	Staff
CSCI-1-0106	MBA 218	LEC	S	10:35:00 AM	12:00:00 PM	Staff
CSCI-1-0106	MBA 218	LEC	S	12:30:00 PM	1:55:00 PM	Staff
CSCI-1-0106	MBA 220	LAB	S	2:05:00 PM	3:30:00 PM	Staff
CSCI-1-0108	MBA 120	LAB	M W	11:20:00 AM	12:45:00 PM	Staff
CSCI-1-0108	MBA 105	LEC	M W	12:55:00 PM	2:20:00 PM	Staff
CSCI-1-0109	MBA 105	LEC	M W	12:55:00 PM	2:20:00 PM	Staff
CSCI-1-0109	MBA 113	LAB	M W	2:30:00 PM	3:55:00 PM	Staff
CSCI-1-0111	MBA 120	LAB	T TH	2:00:00 PM	3:25:00 PM	Ghyam, Massoud
CSCI-1-0111	MBA 218	LEC	T TH	9:35:00 AM	11:00:00 AM	Ghyam, Massoud
CSCI-1-0113	MBA 218	LEC	T TH	9:35:00 AM	11:00:00 AM	Ghyam, Massoud
CSCI-1-0113	MBA 113	LAB	T TH	11:10:00 AM	12:35:00 PM	Ghyam, Massoud
CSCI-1-0114	MBA 113	LAB	T TH	2:40:00 PM	4:05:00 PM	Singhal, Satish
CSCI-1-0114	MBA 219	LEC	T TH	4:15:00 PM	5:40:00 PM	Singhal, Satish
CSCI-1-0115	MBA 219	LEC	T TH	4:15:00 PM	5:40:00 PM	Singhal, Satish
CSCI-1-0115	MBA 113	LAB	T TH	5:50:00 PM	7:15:00 PM	Singhal, Satish
CSCI-1-0120	MBA 120	LAB	M W	4:25:00 PM	5:50:00 PM	Staff
CSCI-1-0120	MBA 319	LEC	M W	6:00:00 PM	7:25:00 PM	Staff
CSCI-1-0121	MBA 319	LEC	M W	6:00:00 PM	7:25:00 PM	Staff
CSCI-1-0121	MBA 120	LAB	M W	7:35:00 PM	9:00:00 PM	Staff
CSCI-2-0140	MBA 113	LAB	M W	12:10:00 PM	1:35:00 PM	Singhal, Satish
CSCI-2-0140	MBA 219	LEC	M W	1:45:00 PM	3:50:00 PM	Singhal, Satish
CSCI-2-0141	MBA 219	LEC	M W	1:45:00 PM	3:50:00 PM	Singhal, Satish
CSCI-2-0141	MBA 113	LAB	M W	4:05:00 PM	5:30:00 PM	Singhal, Satish
CSCI-2-0146	MBA 120	LAB	T TH	3:35:00 PM	5:00:00 PM	Russell, Solomon
CSCI-2-0146	MBA 209	LEC	T TH	5:10:00 PM	7:15:00 PM	Russell, Solomon
CSCI-2-0147	MBA 209	LEC	T TH	5:10:00 PM	7:15:00 PM	Russell, Solomon
CSCI-2-0147	MBA 120	LAB	T TH	7:25:00 PM	8:50:00 PM	Russell, Solomon
CSCI-2-0149	MBA 113	LAB	F	8:00:00 AM	9:50:00 AM	Staff
CSCI-2-0149	MBA 112	LEC	F	10:00:00 AM	12:35:00 PM	Staff
CSCI-2-0149	MBA 112	LEC	F	1:05:00 PM	3:40:00 PM	Staff
CSCI-2-0149	MBA 113	LAB	F	3:50:00 PM	5:40:00 PM	Staff
CSCI-3-0156	MBA 120	LAB	S	9:00:00 AM	10:25:00 AM	Staff
CSCI-3-0156	MBA 118	LEC	S	10:35:00 AM	12:00:00 PM	Staff
CSCI-3-0156	MBA 118	LEC	S	12:30:00 PM	1:55:00 PM	Staff
CSCI-3-0156	MBA 120	LAB	S	2:05:00 PM	3:30:00 PM	Staff
CSCI-3-0161	MBA 113	LAB	M W	5:40:00 PM	7:05:00 PM	Staff
CSCI-3-0161	MBA 219	LEC	M W	7:15:00 PM	8:40:00 PM	Staff
CSCI-3-0162	MBA 219	LEC	M W	7:15:00 PM	8:40:00 PM	Staff
CSCI-3-0162	MBA 113	LAB	M W	8:50:00 PM	10:15:00 PM	Staff
CSCI-12-4815	ONLI ONLI	ONLEC				Ghyam, Massoud
CSCI-12-4815	MBA 112	ONLEC	S	10:00:00 AM	12:20:00 PM	Ghyam, Massoud
CSCI-12-4815	MBA 113	ONLAB	S	1:00:00 PM	3:20:00 PM	Ghyam, Massoud
CSCI-16-0169	MBA 113	LEC	T TH	9:35:00 AM	11:00:00 AM	Staff
CSCI-16-0169	MBA 113	LAB	T TH	8:00:00 AM	9:25:00 AM	Staff
CSCI-30-0170	MBA 215	LEC	T TH	2:40:00 PM	4:05:00 PM	Taylor, Ralph
CSCI-30-0170	MBA 220	LAB	T TH	4:15:00 PM	5:40:00 PM	Taylor, Ralph

BJC 2016 PD FAQ

What is BJC?

BJC, or *The Beauty and Joy of Computing,* is an AP Computer Science Principles curriculum that emphasizes the joy and complexity of creating visual computer programs and apps, balanced with critical reflection on both the potential benefits and harms of new computing technologies. Beauty and Joy of Computing adheres to the College Board's new AP Computer Science Principles course requirements.

BJC has a strong design and programming focus, using the visual programming language Snap*!* and a collaborative, exploratory approach where students work in teams to bring their own unique creations to life.

BJC is culturally situated, presenting programming and computing ideas not in isolation, but in the context of how students interact with computers in their daily lives. In our readings and discussions, we critically explore how technology has changed the world for better, and for worse, enabling students to understand the potential benefits and harms of creating new things with computing. Student readings are taken mainly from the companion book *Blown to Bits,* which is available for free online download.

The BJC project homepage is bjc.berkeley.edu and the newest curriculum is at bjc.edc.org.

Why choose BJC?

- BJC teaches strong fundamental concepts of programming

- In BJC students use Snap!, an accessible but full-featured block-based programming language, to explore concepts ranging from loops and variables up through recursion and higher-order functions.

- BJC focuses on collaboration
  - In BJC, students are encouraged to work in small groups, using pair programming for projects, and collaborating online to answer each others' questions.
- BJC assignments foster creativity & design thinking
  - BJC includes project-centric labs, where groups are encouraged to build and design their own games, applications, and more. See some examples here!
- BJC situates computing in the real world
  - BJC units explore how computing is used in real-world applications, from Google Search algorithms to Big Data to today's news.
- BJC emphasizes that computing is for everyone, and is a matter of equity
  - Computing is a vital skill in the 21st century; everyone needs to have input into new computing innovations. BJC emphasizes equity and engages students and teachers in discussing how we can promote it.
- BJC is well-supported
  - BJC teachers attend face-to-face professional development programs and have access to a wealth of online resources, including a repository of shared course materials, weekly group calls, and personalized support via edX SPOCs (small, personalized online courses that provide a management system for your BJC course)

For more information on how BJC compares to the general CS Principles framework, please see: http://bjc.edc.org/bjc-r/cur/teaching-guide/compare.html

Who is teaching BJC?

The Beauty and Joy of Computing is taught across the country, with over 250 teachers from 41 states applying to attend our teacher preparation workshops. Teachers are also

using our curriculum in Korea, Jakarta, Nepal, Austria, New Zealand, the Philippines, and Germany.

How can I be part of BJC?

We offer a summer professional development workshop for teachers intending to teach BJC the following year. In this workshop, one week in the middle is held face-to-face; the other weeks consist of online lab materials, computer-mediated discussion sessions, and weekly videos from our project leads. Apply to attend our PD at http://bjc.link/16-bjc-pd or contact pd@bjc.berkeley.edu for more information!

How much does it cost?

The BJC Summer PD is offered for a $75 registration fee, and NO cost for public school teachers. Private school teachers must pay $1,000 for the course.

Where is BJC PD being offered?

- Jun 13-17 in Berkeley, California
- Jun 20-24 in Gonzales, Louisiana
- Jul 11-15 in Torrance, California
- Jul 11-15 in Highland Heights, Kentucky
- Jul 11-15 in Boston, Massachusetts
- Jul 18-22 in Raleigh, North Carolina
- Jul 25-29 in Berkeley, California
- Jul 25-29 in Claremont, California (SoCal)
- Jul 25-29 in Union, New Jersey (NYC area)
- Jul 25-29 in Charleston, South Carolina
- Aug 1-5 in Fairfax, Virginia (DC area)
- Aug 1-5 in Philadelphia, Pennsylvania

CALIFORNIA COMMUNITY COLLEGES
CHANCELLOR'S OFFICE

MEDIA STATEMENT **February 5, 2016**

Contact: Paige Marlatt Dorr
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California Community Colleges Chancellor Brice W. Harris' Statement on Newly Proposed Community College Partnership Tax Credit

SACRAMENTO, Calif. – California Community Colleges Chancellor Brice W. Harris issued the following statement on a proposed Community College Partnership Tax Credit, introduced today by the Department of Education:

"I enthusiastically applaud President Barack Obama's administration for creating a tax credit plan that will simultaneously strengthen community college workforce programs and give students the training and skills they need to move into good-paying jobs," said Harris. "The demand for skilled workers in California, and across the country, is constantly growing. This proposal is a victory for both employers and employees to help close the skills gap and fulfill local, regional and state labor market needs."

Under the proposed Community College Partnership Tax Credit, employers would bolster community college programs with contributions like equipment, curriculum designs and instructors. Once a student completes a qualifying program, employers would be eligible for a one-time, $5,000 tax credit for hiring them full-time. A total of $500 million in credits would be available for each of five years, from 2017 through 2021.

The California Community Colleges is the largest system of higher education in the nation composed of 72 districts and 113 colleges serving 2.1 million students per year. Community colleges supply workforce training, basic skills education and prepare students for transfer to four-year institutions. The Chancellor's Office provides leadership, advocacy and support under the direction of the Board of Governors of the California Community Colleges. For more information about the community colleges, please visit http://californiacommunitycolleges.cccco.edu/, https://www.facebook.com/CACommColleges, or https://twitter.com/CalCommColleges.

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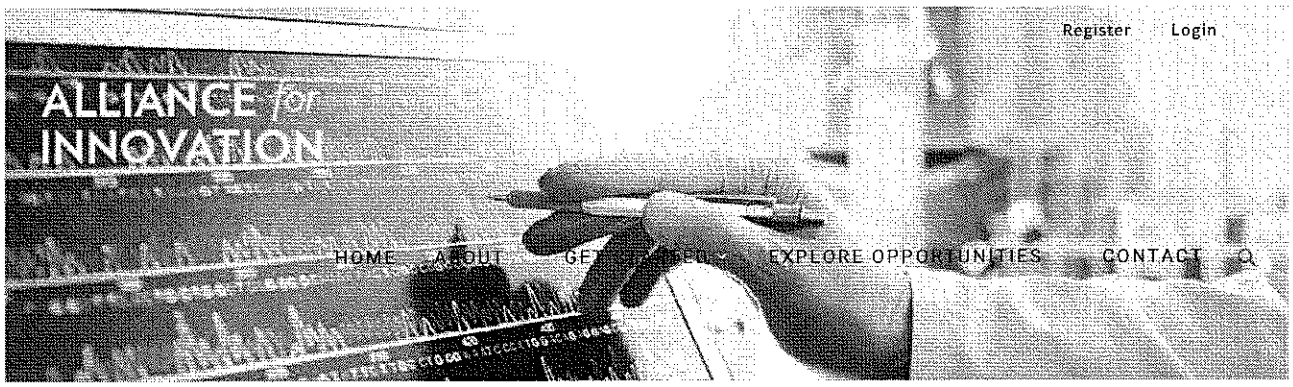

Matching California Community Colleges and Small Businesses

The National Science Foundation is offering supplemental funds to small businesses via the SBIR/STTR Phase II-CC program in order to engage California Community College students in innovative research. Learn more about how NSF supplemental funding works .

Applying for NSF supplemental funding is:

- **Prestigious**. Supplemental funding in these select areas helps businesses to reach their goals, supports innovation and increased economic competitiveness, and builds a globally competitive workforce in STEM fields.
- **Easy**. Our experienced team assists with the matchmaking process between colleges and businesses and provides the assistance necessary to develop compelling and competitive grants.
- **Rewarding**. Small businesses and Community College research teams receive funding to engage in research that accelerates innovative research projects, allows students to gain valuable experience, and develops the future workforce.

Get Started

Interested in having the Foundation assist in reaching your goals? Fill out an interest form to get started.

- Faculty interest form
- Business interest form

Students: If you are interested in this opportunity, please email us to discuss how to get involved.

Fact Sheets

- For Businesses >
- For Faculty and Students >

This material is based upon work supported by the National Science Foundation under Grant No. 1407212

Maaza, Marta

Subject: FW: Computer Science Course Credit Dilemma
Attachments: ECC Catalog Alt. Course Credit Options.pdf

Good morning.

In preparation for the CSCI course being taught at Redondo Beach Union HS, this is what we know so far about the students:

- They are currently enrolled at RBUHS
- They have taken one of the AP Computer Science exams.

The 2015-2016 ECC catalog contains the following information:

Computer Science Examination:
Computer Science 1 (4 units) - Score 4 or 5 on Computer
Science A Examination, or 3 or 4 on
AB Examination
Computer Science 1 and 2 (9 units) - Score of 5 on
Computer Science AB Examination

Attached please find the chart version of the same policy for AP Comp Sci exams.

Taking into consideration the policy for course credit via AP exams, if the student(s) in the ECC CS course at RBUHS have taken the AP Comp Sci exam(s), they potentially already have credit in CSCI 1 and/or CSCI 2, depending on the exam and score.

So we have questions:

1. Is this going to be a problem? (i.e. You cannot get double credit for the same course)
2. Do we need to change the Catalog to reflect the fact that the AP Comp Sci exams are in Java, and CSCI 1 is C++?
3. What adjustments, if any, should we make to the agreement and/or program?

Please reply all to this message so that we are all part of the conversation.

I have copied Dr. Clowers, Quajana Chapman (from AA, oversees curriculum and catalog), and Ken Key, who has vast experience working with students and faculty in the STEM area.

Thank you!

Linda

Linda Ternes

AP Exam	ECC Associate Degree		CSU		UC	
Type of Exam	ECC GE Area	ECC Course Equivalent for Major Requirements	CSU GE	Units Earned Toward Transfer	IGETC	Units Earned Toward Transfer
Computer Science A		**Computer Science 1** 4 semester units The student must have a score of 4 or 5	N/A	3 semester units**	N/A	2 quarter/1.3 semester units***
AP CS EXAM LIMITATIONS				**Maximum One exam toward transfer		***Maximum credit 4 quarter/ 2.7 semester units for both CS exams
Economics - Macroeconomics	Social/Behavioral Sciences 3 semester units	Economics 1 3 semester units	Area D2 3 semester units	3 semester units	Area 4B 3 semester units	4 quarter/2.7 semester units
Economics - Microeconomics	Social/Behavioral Sciences 3 semester units	Economics 2 3 semester units	Area D2 3 semester units	3 semester units	Area 4B 3 semester units	4 quarter/2.7 semester units
English - Language & Composition	Language and Rationality 3 semester units	English 1A Score of 3 or 4 4 semester units English 1A and 1B Score of 5 7 semester units	Area A2 3 semester units	6 semester units	Area 1A 3 semester units	8 quarter/5.3 semester units*
English - Literature & Composition	Language and Rationality or Humanities 3 semester units	English 1A 4 semester units or English 1B 3 units Score of 3 or 4 English 1A and 1B Score of 5 7 units	Area A2 and C2 6 semester units	6 semester units	Area 1A or 3B 3 semester units	8 quarter/5.3 semester units*
AP ENGLISH EXAM LIMITATIONS						*8 quarter/5.3 semester units maximum for both exams
Environmental Science	Natural Sciences 3 semester units	No course equivalency	Area B2 and B3 *(if taken prior to Fall 2009)* or Area B1 and B3 *(regardless of when taken)* 4 semester units	4 semester units	Area 5A *(with lab)* 3 semester units	4 quarter/2.7 semester units
French Language	Humanities 3 semester units	No course equivalency established; two consecutive semesters	Area C2 3 semester units	6 semester units	Area 3B and 6A 3 semester units	8 quarter/5.3 semester units

Student's Eye View: Transferring for a Computer Science Bachelor's Degree

In fall, 2015, Lou Ann Lyon, visited El Camino College, and met with several students conducting surveys for her research on how best to encourage underrepresented students (women, Latinos/Hispanics, and African Americans) who are taking computer science classes at community colleges to transfer to a four year university to complete a bachelor's degree in computer science or related fields. Lou Ann will share some preliminary results and recommendations from this research.

LouAnn Lyon and Jill Denner are two researchers working for a small nonprofit company called ETR outside of Santa Cruz, California. They are finalizing funding for a project to investigate how best to encourage underrepresented students (women, Latinos/Hispanics, and African Americans) who are taking computer science classes at community colleges to transfer to a four year university to complete a bachelor's degree in computer science or related fields. The project is a cross sectional study; we have proposed to invite all students in classes at the community college in the sections of introductory programming/computer science and in the sections of a computer science class closer to transfer (we would consult with you on what class(es) at your school would best meet that criteria) to take a survey. The survey would be given to students a few weeks into the term; it will be an online survey that we would like to introduce in person during class time in all the sections of these classes at your school. All that we ask from instructors is that we have up to 20 minutes of class time to introduce the survey to students. The survey includes such questions as why students are taking the class, their intention to transfer, and how interested they think they are in pursuing computer science; we welcome input from the college on questions to ask—the survey is an opportunity for you to learn about your students.

From the survey results we will invite up to 12 students to participate in an interview that will be conducted remotely and will last up to an hour. The criteria used to invite students to participate in the interview would be to hear from students from each of the targeted groups (women, Latino/Hispanic, and African American). No instructor time would be needed for the interview portion of the study.

We are aiming at late September to introduce the surveys in classes, but our timing depends upon the timing of our funding. In order to encourage participation from students, small gift cards will be offered as incentive to students to participate.

The goal of our study is to investigate the community college to university transfer pipeline from the students' point of view in order to draw conclusions about barriers and supports to the pursuit of computer science and transfer to a university for underrepresented students and malleability of these to intervention. All findings will be shared with your school; we will provide a written summary and graphs (where appropriate) to describe what the data say about why students enroll, why they persist in Cs, and why they don't. As with all our studies, this one will be approved by our IRB board before we begin.

We have a history of research in broadening participation in computing; you can read about us here:
http://www.etr.org/about-us/our-staff/louise-ann-lyon/
http://www.etr.org/about-us/our-staff/jill-denner/