

Agenda for Computer Science Advisory Board Meeting

Friday, November 6 at 11:30 a.m.

1. Welcome
2. Introductions
3. Overview of where the CS program is headed
4. CTEA Grant and the items to apply for (more lab space)
5. New Course Proposals
 - a. Python
 - b. Android
 - c. Java Data Structure
 - d. Ruby on Rails
 - e. CIS vs CS
6. Faculty Recruitment

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.

Computer Science Advisory Board Members

Leslie Aaronson

High school Computer Science teacher

Datuki Bonner

Principal Database Technologist at Raytheon Systems

Kevin Judge

Senior Staff Engineer at John Deere

Winston Kwong

Supervisor of Software Engineering at John Deere ISG-Torrance

Karlene Nguyen

Technical Director at MobilityWare

Brad Rumery

Sampra Energy

Computer Science Department Information

Computer Science Faculty

Full-Time Instructors

1. Massoud Ghyam
2. Solomon Russell
3. Satish Singhal

Math/Computer Science Instructors

1. Carl Broderick
2. Greg Fry
3. Matthew Mata
4. Greg Scott
5. Ralph Taylor

Non Full-Time Math/Computer Science Instructors

1. David Akins
2. Edwin Ambrosio
3. Joseph Hyman
4. Juan Leon
5. Esmaail Nikjeh

Computer Science Courses Offered (all courses are lab and lecture)

1. Computer Science 1 - Problem Solving and Program Design Using C++
2. Computer Science 2 - Introduction to Data Structures
3. Computer Science 3 - Computer Programming in Java
4. Computer Science 12 - Programming for Internet Applications using PHP, JavaScript, and XHTML
5. Computer Science 16 - Assembly Language Programming for the IBM PC and Compatibles
6. Computer Science 30 - Advanced Programming in C++
7. Computer Science 40 - Introduction to UNIX and LINUX Operating Systems

Computer Lab Usage/Need

Each section \approx three hours of lab per week

20 sections for fall 2015 semester

Total lab time usage \approx 60 hours per week (roughly 12 hours per day)

One devoted lab (MBA 113) with 22 workstations

Lab	MW	TTh	Sat	Total Hours
MBA 113	20	8.5	5	33.5
MBA 120	8.5	6	0	14.5
MBA 220	3	3	3	9
				57

Approximately 57 hours/week of lab usage

Spring and Fall Comparisons

Computer Science Classes Offered	Spring 2014	Spring 2015	Spring 2016
CS 1	7	9	9
CS 2	2	3	5
CS 3	2	4	4
CS 12	1	0	1
CS 30	1	2	2
CS 40	1	1	1
Total	14	19	22
<i>57% Increase from Spring 2014 to Spring 2016</i>			

Computer Science Classes Offered	Fall 2014	Fall 2015
CS 1	9	9
CS 12	0	1
CS 16	1	2
CS 2	4	4
CS 3	3	3
CS 30	0	1
Total	17	20
<i>18% Increase from Fall 2014 to Fall 2015</i>		

Degrees and Certificates Awarded 2009-2014

Degrees Awarded					
Major	2009-10	2010-11	2011-12	2012-13	2013-14
Computer Science	1	5	2	7	9
Mathematics	9	31	38	66	49
Pre-Engineering	11	12	22	29	29
Total	21	48	62	102	29

Certificates Awarded					
Major	2009-10	2010-11	2011-12	2012-13	2013-14
Computer Science	2	0	0	2	2
Total	2	0	0	2	2

Course Descriptions

Computer Science 1 - Problem Solving and Program Design Using C++

This course is an introduction to problem solving and program design using structured, top-down algorithmic development techniques applied to the solution of numeric and nonnumeric problems. Software engineering topics such as analysis, design, implementation, testing, documentation, and maintenance of software are discussed. Laboratory work will be done using the C++ computer language.

Computer Science 2 - Introduction to Data Structures

In this course, the C++ computer language is used to demonstrate methods of representing and manipulating data. The student will learn the object oriented problem solving skills necessary to read, write, and correct complex computer programs, and to make important design decisions. Topics include lists, stacks, queues, trees, searching, sorting, modeling and algorithm analysis.

Computer Science 3 - Computer Programming in Java

This course includes a detailed coverage of the Java programming language including Java data types, operators and expressions, control structures, iterations, functions, arrays, classes and inheritance, files, graphical user interface (GUI) applications with event handling, and applets for world wide Web applications.

Computer Science 12 - Programming for Internet Applications using PHP, JavaScript, and XHTML

In this introductory Internet programming course, students learn the fundamentals of Internet programming with JavaScript and Hypertext Preprocessor (PHP), a widely used, open source, general-purpose server-side programming language. Students design and write applications that extend web servers. These applications use backend databases to process data submitted through web forms and provide access to dynamically generated web pages with the retrieved data from the database.

Computer Science 16 - Assembly Language Programming for the IBM PC and Compatibles

This course includes detailed coverage of assembly language programming, based on the IBM compatible personal computer. Topics include hexadecimal arithmetic, two's complement arithmetic, memory organization, addressing modes, procedure calls, the stackframe, macros, calling assembly language procedures from Pascal or C/C++, recursion, BIOS and DOS interrupts, the floating point unit and instructions, and the debugger.

Computer Science 30 - Advanced Programming in C++

This course presents an advanced coverage of the C++ programming language. Topics presented include templates, the Standard Template Library, data abstraction, operator overloading, inheritance, friend functions, virtual functions, multiple inheritance, and virtual base classes. An emphasis will be placed on object-oriented programming.

Computer Science 40 - Introduction to UNIX and LINUX Operating Systems

This course covers UNIX and LINUX operating system concepts and include basic commands, file structures, editors, file management utilities, shell programming, process control, and remote messaging as well as network and system administration.

New Course Proposals

Computer Science 14 - Computer Programming in Python

The course provides an introduction to computer programming and algorithm design using Python programming language. The course covers the fundamentals of Python programming: basic data types, switching and looping constructs, functions, recursion, objects, arrays, and lists, and basic input and output, both interactive and with files.

Computer Science 45 - Android Programming

This course teaches how to develop applications that run on the Android platform with Java as the base language. Topics include the Android Software Development Kit, design principles, application structure, user interfaces, multimedia content, animation, storage, networking, telephony, Location Based Services, notifications and services.

Java Data Structure

Review of Java Object oriented programming principles. Linear data structures such as Stacks, Queues, linked lists. Recursion, non-linear data structures such as binary trees and related algorithms. Analysis of comparison based and recursive sorting algorithms, including radix sort. Graphs.

Ruby on Rails

Build computer science and other software utilizing Ruby on Rails, which is an open-source internet and other application framework based on the Ruby programming language. Ruby on rails has emerged as a very powerful language for the followings: Applications and software that interacts with the web servers and queries the databases and renders results on websites and other frameworks. Topic covered will be: Ruby design principles, Ruby control structures, object oriented programming with Ruby and working with classes and objects. Model-view-controller design patterns. Data input and output during interaction with databases and websites and data validation techniques.



EL CAMINO COMMUNITY COLLEGE DISTRICT

Job Title: Full-Time, Tenure-Track Instructor – Computer Science
Req: A1415-046
Location: ECC Campus
Division: Mathematical Sciences
Position Type: Faculty
Posting Close Date: 02/25/2015

JOB DESCRIPTION

Full-time teaching assignment(s) in Computer Science which includes teaching courses in Assembly Language, Data Structures, UNIX, C++, JAVA, and Internet Programming as well as new computer languages that might emerge including Python. Responsibilities include teaching both lecture and computer lab classes, maintenance of required office hours, full participation in departmental activities, participation in the governance of the college via committee assignments; active involvement in activities designed to improve teaching; application of technology to the instructional program, and establishment of a liaison with companies that employ computer programmers and systems analysts.

REQUIRED QUALIFICATIONS

- Master's degree in Computer Science or Computer Engineering OR
- Bachelor's degree in either of the above AND Master's degree in Mathematics, Cybernetics, Business Administration, or Engineering; OR
- The equivalent - Candidates not possessing the required qualifications as stated above, must complete the supplemental page of the district application and explain in detail how their qualifications are equivalent to those above; OR
- Valid California Community college instructor credential in appropriate subject AND
- Sensitivity to and understanding of diverse academic, socioeconomic, cultural, and ethnic backgrounds of college students, and of individuals with disabilities.

DESIRED QUALIFICATIONS

- Experience and interest in teaching Computer Sciences courses at the community college level.
- Qualifications, experience, and interest in teaching:
- Mathematics (all levels) at the community college level.
- Engineering courses at the community college level.
- Experience in the computer field as a programmer or system analyst.
- Knowledge of instructional strategies for promoting student learning.
- Familiarity with the use of computers and other multimedia technologies in instruction.
- Knowledge in developing industry-based programs.
- Knowledge of designing curriculum that is responsive to the needs of IT professionals.
- Demonstrated experience using student learning outcomes assessment to improve student learning, program review, and curriculum review.

SUPPLEMENTAL QUESTIONS - Please keep your response between 150 and 300 words.

1. What strategies do you use to motivate students and facilitate students' self-motivation? How do you assess whether these strategies are effective?
2. Please describe your knowledge of and experience with using student learning outcomes assessment to improve student learning.

CONDITIONS OF EMPLOYMENT

Contract shall be for full-time, tenure-track teaching assignment for the 2015 – 2016 academic year, beginning August 20, 2015. A teaching demonstration will be required during the interview process. Offer and acceptance of employment is subject to verification of all information provided on the employment application, credential(s), and transcripts. Candidates selected for employment must agree to be fingerprinted, provide current tuberculosis test results, provide proof of eligibility for employment in the United States, and present a valid Social Security card upon hire.

SALARY

The starting salary ranges from \$61,209 - \$84,073 depending on education and experience. Excellent fringe benefits are included.

TO APPLY

An applicant must submit the following by the closing date:

- 1) Online application: https://elcamino.igrentree.com/css_academic
- 2) Cover letter describing how applicant meets the qualifications.
- 3) Resume including educational background, professional experience, and related personal development and accomplishments.
- 4) Pertinent transcripts as stated in the required qualifications. (Unofficial computer-generated academic records/transcripts must include the name of the institution and degrees awarded to be acceptable.)

Foreign Transcripts: Transcripts issued outside the United States of America require a course-by-course analysis with an equivalency statement from a certified transcript evaluation service verifying the degree equivalency to that of an accredited institution within the USA. For information on transcript evaluation services, please visit: <http://www.ctc.ca.gov/credentials/leaflets/cl635.pdf>

- 5) Evidence of a valid community college credential, if applicant holds one.

Please Note: Documents submitted or uploaded for a previous position cannot be reused for other positions. You must submit the required documents for each position you apply for by the closing date. Failure to do so will result in an incomplete application. Applications with an incomplete status will not receive consideration. You may check the status of your application on-line.

If you need assistance you may call 310-660-3593 Ext. 3474 between the hours of 8:00 a.m. and 4:00 p.m. Monday through Friday.

Due to the large volume of calls received on closing dates, we highly recommend that you **do not** wait until the last day to apply so that we may assist you with questions or technical matters that may arise. Give yourself sufficient time to complete the profile, which may take 45 minutes or more. Positions close promptly at 3:00 p.m. PST (pacific standard time).

The college will be closed December 24, through January 1, 2015, January 19, February 6, and 16, 2015.

Closing Date: Wednesday, February 25, 2015 at 3:00 p.m.