

**COLLEGE of SAN MATEO**  
**Computer and Information Science**

## CIS Advisory Board Meeting Tuesday May 8, 2012

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**Advisory Committee Members Present:**

<b>First</b>	<b>Last</b>	<b>Employer / Job Description</b>
Zach	Brown	Hitachi – IT Consultant
Tom	Burre	Soliant Consulting - Applications Developer
Greg	Doolittle	eveo.com – iPad app Developer
Moshe	Gotesman	Walmart.com – Principal Project Manager
Chris	Heckart	IBM – World Wide Lead Architect: for Energy and Utility Validation Processes; Data base Specialist (Data warehousing and ETL
Stormy	Maddox	San Mateo County - Information Security Officer
William	Paoli	Atlassian – Web Developer

**Ex-Officio Members and Guests Present:**

<b>First</b>	<b>Last</b>	<b>Employer / Job Description</b>
<i>Kathy</i>	<i>Ross</i>	CSM Dean Business and Technology
<i>Ron</i>	<i>Brown</i>	CSM CIS Faculty
<i>Stacey</i>	<i>Grasso</i>	CSM CIS Faculty
<i>Melissa</i>	<i>Green</i>	CSM CIS Faculty
<i>Cory</i>	<i>Putnam</i>	CSM Instructional Aide II/CIS
<i>Martha</i>	<i>Tilmann</i>	CSM CIS Faculty
<i>Bob</i>	<i>Timlin</i>	CSM CIS Faculty/Sutter Health Database Developer



## **BEGIN MINUTES: “CIS ADVISORY BOARD 2012”**

### **Advisory Committee Meeting**

**Building 10, Room 401**

**May 8, 2012**

**5:30 – 7:00 PM**

## **Welcome and Introductions**

### **Topics for discussion**

#### **I. Budget (Kathy Ross)**

Budget has been cut every semester since 2008. The Business and Technology Division offered 250 course sections just three semesters ago but has been cut to 157 sections this semester (Spring 2012). Most of the cuts are budget related, but some are the result of things like the building that Welding was offered in being condemned and the permanent closure of a few programs.

The college and the district have been very lucky in that we have received community support via a parcel tax which has helped offset cuts. While other community colleges have had to make massive cuts resulting in cancelation of summer school and the closing of various departments, we have been lucky. The parcel tax program will expire in 2 years. Ratings for SMCCD bonds is number 1 among community colleges.

Innovation Grant – 10 College’s cooperating and applying for a 3 year 15 million dollar grant. Themes of the grant are energy and advanced manufacturing. The intent is to bring in workers who have been displaced from their jobs as a result of having been sent overseas and give them priority. Secondly, the program would address the needs of long term unemployed. Most of the grant would provide funding largely for CIS and Electronics. We hope to use the money to develop, offer and embed new curriculum.

Q: Any sign it is going to get better?

The election will tell the tale. If Jerry Brown gets his new taxes things won’t be nearly as bad as if that measure doesn’t pass.

Q: What are the odds that you get the grant discussed?

About 50/50. The State Chancellor’s Office is lining up behind this group and we are working with Skyline and Canada in addition to the other member of the consortium.

Q: Assuming you get this grant, would you say that would it augment the 2 halves of your mission as I see them: (1) preparing college age students to go to UC/Cal State and (2) working with the unemployed and under employed to get them trained so they can obtain a new job now? Is that accurate?

Yes, we have many unemployed within our courses and if I am able to do this properly, I see the opportunity to put these groups through the programs as cohorts and hopefully open up additional space for other students that do not fit the criteria I mentioned. The best part of the grant is that we can use some of the money to pay people to create new curriculum now instead of waiting for better financial times.

Side discussion of the prevalence of tablets in the medical industry comes up. They are everywhere with more coming all the time.

The possibilities of secure social network use by medical professionals also mentioned.

## **II. Computer Forensics ... What Are We Doing Now? (Ron Brown)**

There are three major classes that are forensics based. This year we had to take care of a major road block that was hindering enrollment. Enrollment in 489 was fine, but the prerequisite for 490 and 491 were causing a road block. Committee on Instruction was given the paper work to request a change to perquisites so that courses are co-requisites meaning that students can take 151 and 489 and the same time, or 489 and 490 at the same time. The remaining issue is to make sure that the registration system tells students that these courses can be taken as co-requisites instead of just bouncing them out of the system; also the language in the catalog is being updated to reflect these changes.

Q: Where do we go now?

I have a survey that is going to be out that asks students to report what they do after the classes so we can track their success. We hope to track them each quarter for 2 years.

Q: What bout computer security? Do you see any of that being added to the program?

Well, 479 is the computer security component.

Q: Beyond that one class?

There are a number of things that can be done. I would like to coordinate with the TCOMM course at Skyline. There should be a networking 2/security class also offered.

The Electronics Dept. needs to address Industrial Data Communication requirements. This is one of the hot areas we must pursue.

Q: Does any of that cover VoiP security?

151 is basically at the traffic filtering level. We do not have VoiP Equipment at this time. We would need hardware and more subject matter.

Q: What about Identity Management as a subject matter?

Q: When you say 'computer security' to me it's like saying "cookies". There are many different kinds. What variety are your courses addressing?

Network Security, routers, filtering, traffic security, sand boxing etc.

Certainly Network Security is important but within the infrastructure/utilities community they are concerned traffic security where someone is about to accomplish insertion of malicious information into traffic that already has security credentials to traverse the network. One set of possible exploits is SQL injection and Cross Site scripting but there are many others. NEVER use dynamic SQL statements and ideally use stored procedures.

Q: When you teach security this is all theoretical, or are there practical labs?

Yes, there are practical labs. They have full software to load to their personal systems that allow them to practice using the tools.

### **III. Intro to Computer Information Science and the New “Information Literacy Component”. (Martha Tilmann)**

I just have an update: about three years ago the college decided to include an information literacy requirement in the AA and AS degree programs. So we added this to our CIS 110 course. We will start this in the Fall and we will focus on how to evaluate information sources on the internet and address issues about plagiarism and the like. CIS 110 is our bread and butter course as it has been highly enrolled for some time, but this addition makes it even more important.

Side discussion: using Windows on iPads/tablets via virtual machines (VM’s). Also the importance of the Cloud and the move back to WYSE terminals that are essentially thin Linux clients whose only job is to establish a remote session with the VM.

Suggestion is made that focusing on the backend building and systems management of these VM based systems could be beneficial to our students. The platform is less important than the concepts and the different VM platforms. Linux is the main commonality between different VM technologies.

The opinion in the Education World is that this is moving target with little clearly establish curriculum upon which to build a program. Others say, it’s something that must be addressed at a higher level such as Upper Division or Graduate work.

Cloud Computing nets down to a different way of delivering technology to the user. Whatever you call the terminals (WYSE, dumb) that technology uses much more centralized hardware. The terminals provide a portal into the centralized hardware. Certainly, the networking part of that is essential to being able to subdivide a central server and then use Identity Management and the security piece to allocate specific resources to specific users or tasks is crucial. To be able to say you get this much of the server’s resources and that it will have specific software available for your use with minimal configuration is invaluable. This doesn’t have to be Upper Division or Graduate level.

Udacity is suggested as a resource and possible model for curriculum.

### **IV. Internet Programming (Melissa Green) [See handout page 8-9]**

We have updated our web certificate again which is now offered as an online program. We would like to scale up to a larger certificate or a degree, but there are many obstacles to creating an entirely online degree. One of the issues is that Digital Media has not moved many of their courses online and some of the course material

is important to a larger certificate or degree. Photoshop, Dreamweaver etc. Most of our students are not local, so the inclusion of “in-person” courses makes the entire program impossible for many students.

Suggestion: Offer preapproval to students to enroll in a similar course at a College near them, rather than needing to commute to CSM.

We started three new courses so we have more of the pieces of the puzzle for a larger certificate or degree.

The name Internet Programming is out of date. Digital Media has “web development” but that’s not really accurate, their program is more like “web design”. We need to modernize our name.

Suggestions: Might not even use the word Web. We will be building things for all different devices that are browser based but not necessarily web based. Mobile Device Programming is one naming option.

Developing of apps via HTML5 or other nonnative languages is discussed with references to iPhone programming prior to Apple allowing outside developers into their ecosystem such that the nonnative approach was the only way to develop apps at that time. The ecosystem is more open now, but the idea has come full circle and the desire to make an app work on all or at least most devices has made use of nonnative languages attractive again. The usefulness of HTML5 and if it is “ready for prime time” or not is discussed. The prevailing opinion seems to be that it’s not perfect but it is getting better all the time.

Name suggestion – In Device Application Development. Web and Mobile Apps. Woble? Mobile Apps with HTML5.

HTML5 is like the “kitchen sink” – you might want to limit the scope of the course to a few specific items that students really need, especially for 3 units. HTML5 and CSS are seen as desirable topic/hip topics-great marketing potential.

People are developing entire applications in JavaScript, including the server side. JavaScript has changed dramatically in the past couple years. JQuery, Backbone, Underscore, MVC (Model-View-Controller with JavaScript). Apache used to run server-side JavaScript. It’s now coming back into style. Expectation on JavaScript used to be nice to have; now it is essential. Need for combo of right and left brain to make a good front-end server engineer requiring analytical and artistic abilities.

Coursera – mentioned as a good resource for naming ideas for dense courses.

The Idea of “Capstone” projects and how they improve student retention of information and develop greater skills sets is discussed. A “Facebook-like” app that Bob’s students developed and other 690 course work using “Doom Builder” to create games is discussed. The fact that we had 2 students doing 690 at once helped to allow for greater scope in the project, this is a model we should investigate further.

Q: Who is the audience you are trying to reach with your Internet Programming certificates and degrees? It started with people coming to us and saying, “I need a job and they want me to know x, y and z.”

The idea that students need to be taught how to properly present themselves and their skills is introduced. Different behavior and dress may be expected for technology roles, especially programming roles. A course that helped students prepare for the kinds of questions and problems they will be asked to solve in this variety of interview would be helpful. This is particularly true for start-ups.

On the other side of the coin, there are plenty of jobs for programmers at established companies like Bank of America where a more traditional approach to interviewing would be appropriate.

It is important for applicants to realize that it is OK to say they do not know everything. Particularly in web development, there are always new technologies that a student may not have been exposed to yet. At IBM, they do not expect applicants to know everything. An ideal response for candidates at IBM might be to say, "I am not familiar with technology X, but if you give me week I can get up to speed." A willingness to learn, flexibility, creativity and open-mindedness are all very desirable traits.

Students can benefit from demonstrating outside application of the skills that they have learned. Companies often want to see what projects students have worked on outside the classroom. Success is based on more than just classroom work. Applying skills from the classroom on outside projects demonstrates that a student is more engaged in the subject matter they are studying. Building a portfolio is ideal and it should consist of a variety of projects, if possible, or at the least one very good project that shows dedication and depth of knowledge.

Young people just out of school always want to work on the newest greatest flavor of the moment. They often fail to realize that there are many opportunities in more traditional, time tested roles such as OLTP (online transaction processing) programming. Every bank, Fortune 500 company, healthcare provider, insurance company etc. requires OLTP programmers. Both in database, java, xml and even COBOL and FORTRAN are still in use. While HTML5 and CSS are important, particularly in this geographic area, there is a huge demand for basic OLTP programming skills. The database course is essential to this topic and if it was offered in conjunction with a Java based OLTP course that would help students to gain marketable skills. Amazon is another company that relies heavily on OLTP.

Payment processing start-ups in San Mateo County use OLTP programming as well. For whatever reason, they seem to cluster together which may have something to do with VISA being in the area.

## **V. Open Discussion**

We were not able to get through the entire agenda. The question of a Fall Meeting is presented.

The suggestion is made that faculty contact those board members that have presented interesting ideas and see if we can develop some smaller focus groups.

Could we get Board members to present small presentations on what their companies are focusing on, and what is trending in their industries at future meetings?

We ran out of time to discuss HIPPA in depth, but it is pointed out that we have a number of hospitals and other healthcare IT organization in the county that represent a large number of potential job.

A final suggestion for looking at integrating some CIS and technology curriculum into the Nursing Program is presented. This may be problematic given their extremely heavy work load, but it might be possible to weave some additional CIS/IT curriculum into the program via short 15 minute PowerPoint presentations similar to those that Bob is developing for healthcare IT groups like Sutter Health.

William Paoli (I think) says that his company is looking to hire interns for the summer.

Lastly, it was mentioned that one of the hottest areas of growth right now is Data Analytics and how to use them in a business setting. If we were to integrate some basic Analytics concepts in CIS 110 or other introductory courses, it would represent a prime opportunity to expose students to the importance and usefulness of these technologies. The focus should be from an end user point of view rather than how to build the system on the backend.

(Time ran out and we were unable to cover the full agenda. Topics that were not addressed are listed below.)

- a. Possible Areas for Internships**
- b. Emerging Fields of Interest**
- c. Programming and Industrial Communications (CIS, Electronics & Telecom[Skyline])**
- d. Electronic Health Records**
- e. Other Promising Areas of Computer Science**

--End Minutes--



# College of San Mateo

## Computer and Information Science

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### Certificate of Specialization in Internet Programming (2012)

Course Number	Course Title	Units
CIS 132, 363-364	3-4 Units from Introduction to Databases, Enterprise Database Management MySQL, or Data Warehousing	3.0-4.0
CIS 114	Internet Programming: JavaScript/Ajax	4.0
CIS 380	Internet Programming: PHP	3.0
	4-6 Units from	
CIS 113	Internet Programming: Ruby	4.0
CIS 117	Internet Programming: Python	4.0
CIS 127	Internet Programming: HTML5 and CSS	3.0
CIS 379	Internet Programming: XML	3.0
	Total Units	15.0-17.0

### A.S. Degree/Certificate of Completion in Internet Programming (Draft)

Course Number	Course Title	Units
CIS 114	Internet Programming: JavaScript/Ajax	4.0
CIS 121	UNIX/Linux	3.0
CIS 127	Internet Programming: HTML5 and CSS	3.0
CIS 132, 363-364	3-4 Units from Introduction to Databases, Enterprise Database Management MySQL, or Data Warehousing	3.0-4.0
CIS 380	Internet Programming: PHP	3.0
CIS 690	Special Project	2.0
	11-13 Units from	
CIS 113	Internet Programming: Ruby	4.0
CIS 117	Internet Programming: Python	4.0
CIS 132, 363-364	Additional 3-4 Units from Database classes	3.0-4.0
CIS 379	Internet Programming: XML	3.0
DGME	ActionScript, CSS, Flash, Photoshop, or Web Design	3-9
	Total Units	29-32

# College of San Mateo

## Computer and Information Science

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### New CIS Courses 2012

#### **CIS 117 Internet Programming: Python (4 units)**

(Pass/No Pass or letter grade option.) 48 lecture and 48 lab hours per term. Recommended Preparation: Eligibility for ENGL 838/848 and completion of CIS 111, CIS 125 or CIS 254. Comprehensive course in Python, an open-source dynamic object-oriented scripting language. Covers variables, arrays, lists, tuples, dictionaries, functions, methods, classes, objects, and writing server-side Python scripts for the Web. Also covered are exception handling, regular expressions, and modules. An introduction to SQL and the MySQL database, and advanced topics such as Model-View-Controller architecture and Web application development with the Django framework. (AA, CSU)

#### **CIS 127 Internet Programming: HTML5 and CSS (3 units)**

(Pass/ No Pass or letter grade option.) 48 lecture and 16 lab hours per term. Recommended Preparation: eligibility for ENGL 838/848 and completion of CIS 111, CIS 125 or CIS 254. Introduction to HTML5 and CSS (Cascading Style Sheets). Covers CSS3, HTML5 elements, HTML5 APIs, forms, audio and video, offline applications, Canvas drawing and animation, communication APIs, Web Sockets, and Web Workers. Introduces HTML5 Geolocation, local and session storage, the Web SQL Database, and advanced topics such as mobile web applications, performance analysis, browser issues, and developer tools. (AA, CSU)

#### **CIS 132 Introduction to Databases (3 units)**

(Pass/No Pass or letter grade option.) 48 lecture and 16 lab hours per term. Recommended Preparation: eligibility for ENGL 838/848. This course covers database design and the use of database management systems. It includes an introduction to the relational model, relational algebra, and SQL. It also covers XML data including DTDs and XML Schema for validation, and an introduction to the query and transformation languages XPath, XQuery, and XSLT. The course includes relational design principles based on dependencies and normal forms. Additional database topics introduced are indexes, views, transactions, authorization, integrity constraints, triggers, on-line analytical processing (OLAP), and emerging NoSQL (not only SQL) databases for cloud and desktop computing. (AA, CSU)