

# College of Arts and Sciences (CAS) 2016 - 2017 Yearly Assessment Report

If you would like to preview this form before you begin submitting, please follow this link:

[https://myusf.usfca.edu/sites/default/files/2017\\_Yearly\\_Assessment\\_Report\\_preview.pdf](https://myusf.usfca.edu/sites/default/files/2017_Yearly_Assessment_Report_preview.pdf)

## NOTES:

- **2016-2017 Yearly Assessment Reports** for all CAS Majors, Minors, Graduate Programs, and Non-Degree Seeking Programs are due by 10/28/17; early submissions are welcome.
  - Undergraduate programs (majors and minors) must include two curricular maps – one showing how courses map onto Program Learning Outcomes (PLOs) and one showing how PLOs map onto Institutional Learning Outcomes (ILOs).
  - Graduate programs must include one curricular map showing how courses map onto PLOs.
  - Non-degree seeking programs must include one curricular map showing how PLOs map onto ILOs.
- **This form cannot be saved once it is in-progress. If you close out of the form before submission, responses will be discarded. Please ensure you are ready to fill out the full form once you begin, and/or keep a backup copy of your responses.**
- If you encounter any issues while utilizing this form, please contact Corie Schwabenland Garcia, Academic Data and Assessment Analyst, at x4285 or [ceschwabenland@usfca.edu](mailto:ceschwabenland@usfca.edu)

Identifying Information 

Name of Program \*

Computer Science

Type of Program \*

Graduate Program ▼

College of Arts and Sciences Division \*

Sciences ▼

Name/Title/E-mail Address of Submitter \*

EJ Jung/Associate professor/ejung@cs.usfca.edu

Name(s)/E-mail Address(es) of Additional Individual(s) Who Should Receive Feedback

David Wolber/Professor and Chairperson/wolberd@usfca.edu

Submissions via the following Google form are strongly encouraged. However, if your department/program wishes to upload its assessment report in lieu of completing this form, you can do so here. Would you like to upload a PDF version of your Yearly Assessment Report?

Yes

No

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## Yearly Assessment Report PDF Upload

If you wish to submit a separate PDF report, please be sure to include all the components listed in this google form (screen shots of the google form are available at [https://myusf.usfca.edu/sites/default/files/2017\\_Yearly\\_Assessment\\_Report\\_preview.pdf](https://myusf.usfca.edu/sites/default/files/2017_Yearly_Assessment_Report_preview.pdf))

Please upload a PDF version of your Yearly Assessment Report here: \*

Please upload your program's PLO x Courses Curriculum map here (all file types allowed) \*

Please upload your program's PLO x ILO Curriculum map here (all file types allowed)

If you would like to upload any other files (i.e. rubrics used to evaluate student work products, scripts/surveys/other indirect methods used to evaluate student work), you may upload them here. Please use descriptive file names (i.e. "SociologyAssessmentRubric").

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## Mission Statement

Please type and/or copy-and-paste directly into the space below:

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The mission of the MS in Computer Science graduate program is:

To provide students a strong theoretical background in computer science and deep technical programming skills by focusing on one-on-one student interaction and fostering the unique capabilities of each student.

Our mission statement coincides with the university mission to give students the knowledge and skills needed to succeed as professionals, and we are sensitive to the needs of our extremely diverse student population.

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## Program Learning Outcomes (PLOs)

Please type and/or copy-and-paste directly into the space below:

\*

Students who graduate with a MS in Computer Science will be able to:

Demonstrate advanced knowledge in a breadth of topics in computer science, including theory, systems, and development.

Demonstrate mastery in at least one area of specialization in computer science.

Demonstrate ability to independently solve advanced problems in academia or industry.

Demonstrate ability to learn, use, and adapt emerging developments in the state-of-the-art in computer science.

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## Curriculum Maps

Please upload your Curriculum Maps below. All file types (Excel, PDF, etc.) are allowed.

Please upload your PLOs to Courses Curriculum map here \*

MSCS - Curriculum...

Please upload your PLOs to ILOs Curriculum map here \*

MSCS PLO X ILO C...

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## Assessment Methods

Which of your Program Learning Outcomes did you assess during 2016-2017? \*

Demonstrate advanced knowledge in a breadth of topics in computer science, including theory, systems, and development.

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What student work products did you use to assess your PLO(s)? Pick one or more direct methods from the list below and briefly describe below what specific work product(s) you used. \*

- Published (Standardized) Test (e.g., Major Field Test)
- Class Tests & Quizzes with Embedded Questions
- Class Presentations
- Off-Campus Presentations (NGOs, clients, agencies, etc.)
- Research Projects Reports
- Case Studies
- Term Papers
- Portfolio
- Artistic Performances, Recitals & Products

- Capstone Projects
- Poster Presentations
- Comprehensive Exams
- Thesis, Dissertation
- Pass Rates on Certification or Licensure Exams
- Group Projects
- In-/Out-of Class Presentations
- Competency Interviews (e.g., oral exams)
- Simulations
- Juried Presentations
- Other: Programming Assignment (Project)

## Brief description of student work products used to assess PLOs: \*

CS 601 Principles of Software Development is one of the first two core courses which all our Master's students take in their first semester in the program. As shown in the PLOs to Courses Curriculum map, CS 601 aims to provide comprehensive coverage on advanced knowledge in development (PLO1), and initial coverage in demonstrating ability to independently solve advanced problems (PLO3) and demonstrating ability to learn, use, and adapt emerging developments in the state-of-the-art in computer science (PLO4). This year, we focus on PLO1. CS 601 covers a breadth of topics in development in computer science, including software cycle analysis, testing, design patterns, inheritance/polymorphism, multithreading, networking, database programming, and web development. A large-scale programming assignment (called project) is designed for students to use their knowledge in all these topics to build a hotel search website with user reviews and availability information.

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What tools did you use to evaluate the student work product(s) (e.g. rubric, test score)? \*

Rubric

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Please upload any tools used to evaluate student work product(s) here in PDF format only. Please use descriptive file names (e.g. "SociologyAssessmentRubric.PDF").

CS 601 Project Rub...



Who evaluated the student work product? Check all that apply. \*

- FT faculty members who were not instructor(s) of the course(s)
- FT faculty members who were instructor(s) of the course(s)
- PT faculty members who were not instructor(s) of the course(s)
- PT faculty members who were instructor(s) of the course(s)
- Other: .....

Describe the calibration procedure you employed, if any (i.e., how did you assure that faculty raters were consistent with each other in how they rated the student work products):

.....

## What indirect methods did you employ, if any?

- Student Survey
- Student Interview
- Focus Groups
- Reflection Sessions
- Reflection Essays
- Faculty Survey
- Exit (end of program) Survey
- Exit (end of program) Interview
- Alumni Survey
- Employer Survey
- Diaries or Journals
- Data from Institutional Surveys
- Curriculum/Syllabus Analysis
- Other: .....

Please indicate and briefly describe what indirect methods you used (and/or attach the survey/script/interview below).

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Attach survey/script/interview here as needed

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## Results

What were the direct data results? \*

27 students received an exemplary rating (equivalent to grade A), 10 students received an acceptable rating (equivalent to grade B), and 3 students received unsatisfactory rating (equivalent to grade C or lower).

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What were the indirect data results? (If applicable)

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How do you interpret these results? What do they mean? \*

Most students (92.5%) learned advanced knowledge in development at an exemplary or acceptable level. Among 3 students who received unsatisfactory rating, all of them were not CS majors in their undergraduate degrees, and not adequately prepared for our Master's program.

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## Closing the Loop



"Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change: Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought."

--9 Principles of Good Practice for Assessing Student Learning: American Association for Higher Education

Purpose: In the current field of higher education today, Assessment of student learning is seen as a critical tool to assist in the mission of student centered education. It is a way for faculty and the other university constituents involved in learning to use data driven results to bring about needed curricular or programmatic changes to improve student outcomes.

In the previous section, you have analyzed the data to get some critical insights into student learning. This section is for our way forward, and touches upon a few core areas:

## What might you do as a result of these assessment results? What curricular or programmatic changes might you implement? \*

- Revision of PLOs
- Changes in pedagogical practices
- Revision of program course sequence
- Revision of course(s) content
- Curriculum Changes (e.g. addition and/or deletion of courses)
- Modified program policies or procedures
- Designed measurement tools more aptly suited for the task
- Improved within and across school/college collaboration
- Improved within and across school/college communication
- Revised student learning outcomes in one or more courses
- Modified rubric
- Developed new rubric
- Developed more stringent measures (key assessments)
- Modified course offering schedules
- Changes to faculty and/or staff
- Changes in program modality of delivery
- Other: Development of a new program

## Description of the Proposed Changes (as checked above): \*

We have identified a pool of students who were not CS majors in their undergraduate degrees and would like to build a CS foundation so that they could successfully complete our Master's program. The department started to offer a "Bridge" program starting Fall 2017, where the non-major students can take intensive preparation courses for 1 academic year before proceeding to our Master's program.

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## Amendments to your assessment plan: If, in course of conducting current assessment, you felt a need to amend the assessment plan itself for future assessments, please discuss it here in a few sentences: \*

2017-2018 is the first year that we are offering the Bridge program and we look forward to assessing their learning outcomes in the Bridge program and also their achievements in the Master's program in 2018-2019.

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Google Forms

## Project Final Release Grading Rubric:

### 50 pts

Students were required to implement 50 points worth of features:

- (a) All the features from the first table, Features I, for 28 pts, **and**
- (b) Several features from the second table, Features II, for a total of 22 points.

Students were also allowed to implement **up to 5 pts of extra features**.

**Features I:** All of these features are required (28 pts).

Feature	Description	Points
<b>Hotel Pages</b>	When the user clicks on a particular hotel, (s)he should be taken to a webpage for this hotel that displays the name of the hotel, the address, the average rating, <i>the link to expedia's page of this hotel</i> , and a link or a button to see all the reviews for the hotel.	<b>3 pts</b>
<b>Modify Review</b>	Allow a user to <ul style="list-style-type: none"><li>- modify <i>their</i> previously written review 3.5 pts</li><li>- delete it. 1.5 pts</li></ul> This feature should only be available to logged in users, and he/she can modify only his/her own review.	<b>5 pts</b>
<b>Tourist Attractions</b>	Display a list of tourist attractions within a certain radius of a given hotel.  Note: If they don't ask the user to specify a radius and just use some default radius, it's ok, don't take off pts.	<b>5 pts</b>
<b>Template Engine</b>	Use a template engine to generate web pages (some options: Velocity, StringTemplate, Thymeleaf, JSP etc..). Most people used Velocity.  Ask them to show you the html templates and the code where they insert data into the templates. They should be using a template engine for most webpages.	<b>7 pts</b>
<b>Bootstrap</b>	Use bootstrap templates to give your website clean, "professional" look.  The front end should look reasonably nice. If it looks too bad, don't assign grade for this part - please drop by my office and ask me to take a look at it.	<b>5 pts</b>
<b>Deployment</b>	Deploy your webserver on AWS or on the micro cloud node. All features should be working on the node.	<b>3 pts</b>

	<p><b>If all but one feature work on the node</b> (and that feature works well locally) - 0.25</p> <p>If most features do <b>not</b> work on the node - don't give any credit for deployment, give 0.</p> <p>If several features are working, others are not, take off from 1 to 2 pts.</p>	
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**Features II:** You are also **required** to implement **22 points worth of the following features.**

Feature	Description	Points
<b>View Hotels By City/State</b>	<p>Allow the user to select the city and the state and show all the hotels in that city.</p> <p>It's ok if they search separately by city. And separately by state. Also ok to search by both.</p>	<b>3 pts</b>
<b>Search Hotels</b>	<p>Allow the user to search hotels by name.</p> <p>There should be a textbox where the user can enter a name of the hotel. If they support partial search - great, but if only by exact hotel name - its ok too.</p>	<b>3 pts</b>
<b>Sort by</b>	<p>Allow the user to select how to sort reviews for a given hotel:</p> <ul style="list-style-type: none"> <li>• by date (most recent ones on top) 2.5 pts</li> <li>• by rating (highly rated on top) 2.5 pts</li> </ul>	<b>5 pts</b>
<b>Saved Hotels</b>	<p>Provide an option to "save" a specific hotel to a list of "Saved Hotels" - the hotels that the user is considering for future stays. Allow the user to clear that list (ok to clear the whole list) - 1pt. This feature should only be available to logged in users.</p>	<b>5 pts</b>
<b>"Liking" Reviews</b>	<p>Allow users to "like" a review if they find the review helpful. Underneath the review, display a label "n users found this Review helpful" and a "Like" button.</p> <p>They should <b>not</b> allow the user to like the same review several times (otherwise -1pt). Only logged in users should be allowed to like a review.</p>	<b>5 pts</b>
<b>Show N reviews per page</b>	<p>Provide pagination: show a fixed number of reviews on each page, the user should be able to navigate through multiple pages with reviews. <b>If they implemented Sort By function, check that pagination works correctly with it</b> (info on the pages 1, 2, 3... should be correct if we sort by date and if we sort by rating). If mostly works, but</p>	<b>5 pts</b>



	there is a bug - give 2.5 pts.	
<b>GoogleMap</b>	<p>Embed GoogleMaps on your site. 2pts: Show a map of SF bay area, and show a given hotel with the marker. The most common option, it's easy and is worth 2 pts.</p> <p><b>More points for more complicated use of maps</b> like showing attractions on the map, showing a street view of the hotel, interacting with the marker etc.. (for an example of a fancy use of maps, check Rohith's project: <i><a href="http://mc08.cs.usfca.edu:2000/login">http://mc08.cs.usfca.edu:2000/login</a></i>.</p>	<p><b>2 pts - standard score</b></p> <p><b>If sophisticated use of GoogleMaps, give more pts, up to 6 pts.</b></p>
<b>Hotel Recommender</b>	Recommend hotels to the user based on his/her previously written hotel reviews (and maybe search history). <b>Refer to me so that I could grade this feature myself.</b> Grade all the other features.	<p><b>3 - 10pts</b></p> <p>Depends on difficulty - ask the instructor.</p>
<b>Visited Expedia Links</b>	Store a history of all expedia hotel links visited by a user, and allow the user to view and clear that history.	<b>5 pts</b>
<b>Last Login Time</b>	<p>Store and display the last date&amp;time the user visited the website (the feature is available only for logged in users).</p> <p>I saw many mistakes here! The program should show the time of the past login (the one before the current login). When the page is refreshed, but the user is still logged in (did not logout), that number, the last login date, should <b>not</b> change.</p> <p>Example: I login at 6am, then logout. Then login again at 8am. My Last login should show up as <b>6am</b>. I refresh the user profile page (without login out!), it should still show 6am. Then I logout and login again at 10am. Now my last login is 8am.</p> <p>-If they just show the time of the current login, it's a 0.</p>	<b>5 pts</b>
<b>Hotel Availability</b>	Allow the user to specify the dates of their stay, and show availability of a given hotel. Use fake data to determine availability. You may also want to implement "booking a hotel room". If they implemented it, just tell them to drop by my office, I want to grade this featurr myself.	<p><b>5 pts+</b></p> <p>Depends on difficulty - ask the instructor.</p>

### Table 6: Curriculum Map

		Required					Special			Selected Electives															
Learning Outcome		601	630	652	673	690	695	698	699	615	620	621	625	635	636	640	642	662	675	680	681	682	683	685	686
1	Demonstrate advanced knowledge in a breadth of topics in computer science																								
	<i>Advanced knowledge in theory -and-</i>			M	C														C	M					
	<i>Advanced knowledge in systems -and-</i>		M							C	M	M	M	C	C					M		M		M	
	<i>Advanced knowledge in development</i>	C		M							M	M	M			M	M	M		M	M	M	M	M	M
2	Demonstrate mastery in at least one area of specialization in computer science		M	M	M					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
3	Demonstrate ability to independently solve advanced problems																								
	<i>Solve programs in academia -or-</i>					M		C	C			M			M					M				M	
	<i>Solve problems in industry</i>	I		I		M	C								M							M			
4	Demonstrate ability to learn, use, and adapt emerging developments in the state-of-the-art	I				C						M			M					M		M		M	

I: Introduced or Minimal Coverage    M: Moderate Coverage    C: Comprehensive Coverage

	PLO1	PLO2	PLO3	PLO4
Institutional Learning Outcomes X Program Learning Outcomes	Demonstrate advanced knowledge in a breadth of topics in computer science, including theory, systems, and development.	Demonstrate mastery in at least one area of specialization in computer science.	Demonstrate ability to independently solve advanced problems in academia or industry.	Demonstrate ability to learn, use, and adapt emerging developments in the state-of-the-art.
<b>Institutional Learning Outcomes</b>				
1. Students reflect on and analyze their attitudes, beliefs, values, and assumptions about diverse communities and cultures and contribute to the common good.				
2. Students explain and apply disciplinary concepts, practices, and ethics of their chosen academic discipline in diverse communities.	X	X	X	X
3. Students construct, interpret, analyze, and evaluate information and ideas derived from a multitude of sources.	X	X	X	X
4. Students communicate effectively in written and oral forms to interact within their personal and professional communities.	X	X	X	
5. Students use technology to access and communicate information in their personal and professional lives.	X	X	X	X
6. Students use multiple methods of inquiry and research processes to answer questions and solve problems.	X	X	X	X
7. Students describe, analyze, and evaluate global interconnectedness in social, economic, environmental and political systems that shape diverse groups within the San Francisco Bay Area and the world.			X	