

YEARLY PLANNING DISCUSSION TEMPLATE

General Questions

Program Name __Computer Science_____ **Academic Year** _____ 2023-2024

1. Has your program mission or primary function changed in the last year?

No changes.

2. Were there any noteworthy changes to the program over the past year? (eg, new courses, degrees, certificates, articulation agreements)

- **Additional offering of CS161: Discrete Structures (in-person).**
- **Update to CS102 textbook**
- **Changes to testing strategies and assignments in CS111 and CS112 (based on last year's program review).**

3. Is your two-year program map in place and were there any challenges maintaining the planned schedule?

The program map is in place. Computer science has three.

- **AA degree**
- **AS-T degree (CSU)**
- **AS-T degree (UC)**

The sequences can be found here:

<https://www.hancockcollege.edu/pathways/sciences-technologies/computer-science.php>

There is also a math program map that has an emphasis on computer science. The sequence can be found here: <https://www.hancockcollege.edu/pathways/sciences-technologies/math.php>

There were no issues maintaining this schedule. The core CS courses (CS111, CS112, CS131, and CS161) are offered every spring and fall.

The introductory course, CS102, is offered every semester. This course is an overview of computer science, which includes a gentle introduction to programming. It serves the purpose of getting curious students excited about the major.

4. Were there any staffing changes?

Chris Eachus, a full-time Math instructor, began teaching CS161 (live). This is the second section of that course. The first section is taught by Chris Pavone (online).

5. What were your program successes in your area of focus last year?

CS102 course content review.

- **Updating of the CS102 textbook to the latest version of Technology in Action. This was essential because of the latest innovations in AI and operating systems.**
- **Updating all of the homework test banks, which removed out of date questions and added questions regarding the latest technologies.**
- **Mark Kozel created a much needed refresh of lecture videos for online CS102 students.**

CS111 and CS112 course content review..

Updating several assignments where students consistently struggled.

These updates were in line with the recommendations from last year's program review. Specifically, some assignments were updated to slowly build up in difficulty as opposed to having several unrelated computer programming questions. The assignments still cover the same material, but the student can work on the same code for the entire assignment without switching contexts. The idea is that students should become "ultra-familiar" with their code to the point where every single line is scrutinized and understood.

Updating the testing strategies for the in-person students.

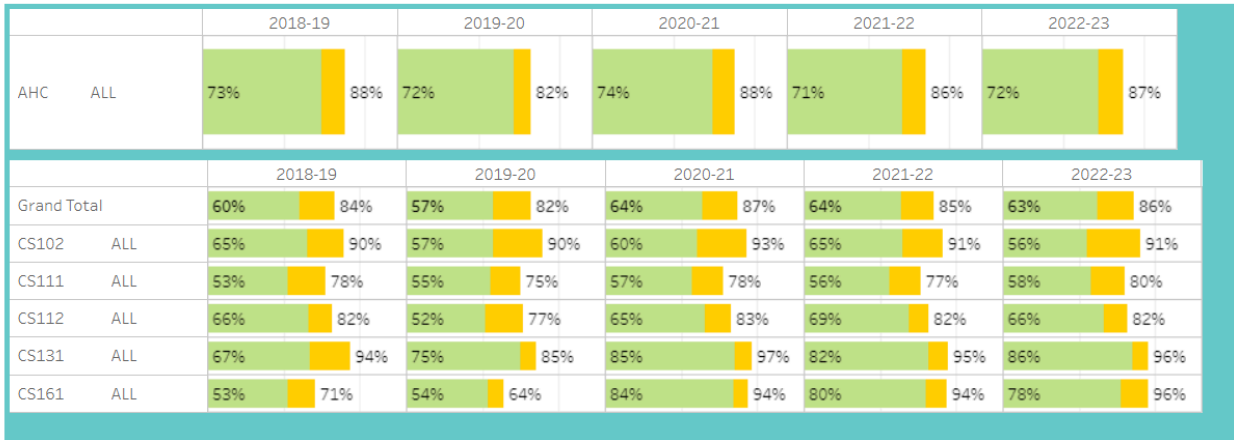
The tests in the live courses have been a consistent challenge for students. My theory is that very few students will diligently read the textbook fully and they will instead simply web search or ask ChatGPT for answers when doing homework. This misguided strategy makes students unfamiliar with the syntax, vocabulary, and makes them have a weakened ability to read code.

In the live offering of the CS111 and CS112 courses, the multiple-choice, 100-question final was replaced with a medium-complexity computer programming assignment that had to be completed in-person within two hours under instructor supervision. Further, before the final, a practice final was provided to help students understand what is expected of them.

The effectiveness of these changes on success and retention are to-be-determined. Once the 23-24 academic year data is provided, we will have a better understanding. The current success and retention rate has been mostly consistent so we will see if a small spike is produced. See the following image.

Success & Retention

Success % Retention %



Learning Outcomes Assessment

- a. Please summarize key results from this year's assessment.

The SLO tool is unavailable as of this writing, however data was collected and will be entered when the site is ready. Data was collected for some spring sections of CS102, CS111, and CS112.

CS131 and CS161 data has not been collected yet.

SLO	Spr CS111 Live Percentage of students that earned a 4 or 5
Demonstrate the ability to solve simple problems and express solutions as algorithms.	68%
Use fundamental programming constructs in a high level language.	68%
Find and correct simple bugs.	68%

SLO	Spr CS112 Live Percentage of students that earned a 4 or 5
Demonstrate the ability to solve simple	84%

problems and express solutions as algorithms.	
Use fundamental programming constructs in a high level language.	84%
Find and correct simple bugs.	84%

SLO	CS102 CRN 40286 Percentage of students that earned a 4 or 5
Use basic terms applicable to computer systems appropriately	61%
Develop simple static HTML web pages	64%
Describe some of the major historical events related to computing.	93%

One observation is that nearly all of the percentages are greater than the success rate of the same course in the Spring 2023 term. This observation may not necessarily be valid due to the fact that the SLO data presented here is mostly for in-person courses however, the totals provided by Institutional Effectiveness are across all sections.

- b. Please summarize your reflections, analysis, and interpretation of the learning outcome assessment and data.

My interpretation is that if the overall course grade was more correlated to the SLO percentages, then the success rate might increase. For CS111 and CS112 specifically, the SLO data correspond to homework assignments (not tests). So, perhaps if the tests were more closely aligned to homework, the success rate would go up. However, if the grade is 100% dependent on non-test type of assignments, then the student's course grade might not correlate to his/her actual skill but would more align with the student's ability to work in a group, search online for answers, or use AI tools.

- c. Please summarize recommendations and/or accolades that were made within the program/department.

N/A

- d. Please review and attach any changes to planning documentation, including PLO rubrics, associations, and cycles planning.

N/A

Distance Education (DE) Modality Course Design Peer Review Update (Please attach documentation extracted from the *Rubric for Assessing Regular and Substantive Interaction in Distance Education Courses*)

- a. Which courses were reviewed for regular and substantive interactions (RSI)?

N/A

- b. What were some key findings regarding RSI?

N/A

- Some strengths:

N/A

- Some areas of possible improvement:

N/A

- c. What is the plan for improvement?

N/A

CTE two-year review of labor market data and pre-requisite review

- a. Does the program meet documented labor market demand?

N/A, not CTE

- b. How does the program address needs that are not met by similar programs?

N/A, not CTE

- c. Does the employment, completion, and success data of students indicate program effectiveness and vitality? Please, explain.

N/A, not CTE

- d. Has the program met the Title 5 requirements to review course prerequisites, and advisories within the prescribed cycle of every 2 year for CTE programs and every 5 years for all others?

N/A, not CTE

- e. Have recommendations from the previous report been addressed?

N/A, not CTE

Use the tables below to fill in **NEW** resources and planning initiatives that **do not apply directly to core topics**. *This section is only used if there are new planning initiatives and resources requested.*

None at this time.

Resource Requests: Please use the Resource Request Excel template located on the Program Review web page to enter resource requests for equipment, supplies, staffing, facilities, and misc. resources needed. Send completed excel document along with completed program view core topic for signature.

None at this time.

Area of Focus Discussion Template

ACADEMIC SERVICES AND SUPPORT

Academic Services and Support – assess and improve relationship with tutorial services, library, counseling, learning assistance program (LAP), etc. and evaluate co-curricular support courses.

Possible topics:

- Collaborate with student success team members to ensure institutional barriers are mitigated.
- Review and summarize student support options.
- Implement student surveys and evaluate results.
- Assess co-curricular support programs and services.

1. What data were analyzed and what were the main conclusions?

Summary of student support options: Students have three main sources for student support:

1. **Online and in-person tutoring via the STEM center.**
 - a. This resource also offers Discord (similar to a chatroom and discussion board combined)
 - b. No appointment necessary.
2. **Online and in-person tutoring via the tutoring center.**
 - a. Appointment only.
3. **In-person tutoring via the math center.**
 - a. No appointment necessary.

Students will primarily utilize one of these resources for help with computer programming homework assignments.

The STEM center is by far the most popular option. There are typically four or five computer science tutors that are scheduled throughout the day during all semesters (even winter). The tutors are an invaluable resource as students can get help at nearly any time of the day. Further, if a tutor is unavailable, they can post in Discord and a tutor will respond once available.

The tutoring center requires extra work to get enrolled and scheduled, however, this option offers 1-on-1 support over the course of an hour. This enables longer, deeper conversations about the material.

The math center is a backup option for support. Specifically, the tutors in this center are understandably math focused. If a student happened to have taken a CS course, they might

choose to ask for help, however the first two student support options are much more common.

2. Based on the data analysis and looking through a lens of equity, what do you perceive as *challenges* with student success or access in your area of focus?

One challenge is the over-reliance on tutoring and AI tools such as ChatGPT. In engineering, it's important to accept that you will consistently "hit the wall" and come up with a solution (i.e. computer program) that doesn't work. Ideally, the student then experiments, reviews the materials provided in the course, and ultimately finds a solution. That process of experimentation is important and an over-reliance on support services will short-circuit this learning process.

It is a challenge to balance student success, motivation, and the desire for students to deeply analyze problems.

3. What are your plans for change or *innovation*?

Several changes can be implemented to support students

1. **At the beginning of each academic year, contact the tutors and remind them of expectations. Specifically, tell them that the goal is to guide the student to the correct solution as opposed to providing the solution.**
2. **Emphasize debugging skills in class. Purposefully have errors in some examples, then debug as a class.**
3. **Frequently remind students of expectations when doing homework.**

4. How will you *measure* the results of your plans to determine if they are successful?

One way to measure success is to examine the results of an assessment that is done under the supervision of an instructor and where no support services are available. Further, this assessment should be similar to what is expected on a homework assignment. If the student can operate independently, then the level of support services is likely where it should be.

Validation for Program Planning Process: If you have chosen to do the Validation this year, please explain your process and the findings.

6. Who have you identified to validate your findings? (Could include Guided Pathway Success Teams, Advisory Committee Members, related faculty, industry partners or higher education partners)

N/A

7. Are there specific recommendations regarding the core topic responses from the validation team?

N/A

Based on the narratives for the prompts above, what are some program planning initiatives (objectives) and resources needed for the upcoming years? Use the tables below to fill in **NEW** planning initiatives. *This section is only used if there are new planning initiatives that pertain to the Core Topic only.*

New Program Planning Initiative (Objective) – Yearly Planning Only			
Title (including number):	41 computers for M201 \$1,200 each		
Planning years:	2025-2026		
Description:			
<i>The computers in M201 consistently shut off without warning. Further, the monitors are somewhat too small.</i>			
What college plans are associated with this Objective? (Please select from the list below):			
<input type="checkbox"/> Ed Master Plan	<input checked="" type="checkbox"/> Student Equity Plan	<input type="checkbox"/> Guided Pathways	<input type="checkbox"/> AB 705/1705
<input type="checkbox"/> Technology Plan	<input checked="" type="checkbox"/> Facilities Plan	<input type="checkbox"/> Strong Workforce	<input type="checkbox"/> Equal Employment Opp.
<input type="checkbox"/> Title V			

New Program Planning Initiative (Objective) – Yearly Planning Only	
Title (including number):	41 padded, adjustable chairs for M201 \$175 each
Planning years:	2024-2025
Description:	
<i>The current chairs have no padding and are very uncomfortable especially when sitting for a 2-3 hour course. These chairs need updating.</i>	

What college plans are associated with this Objective? (Please select from the list below):

- Ed Master Plan Student Equity Plan Guided Pathways AB 705/1705
- Technology Plan Facilities Plan Strong Workforce Equal Employment Opp.
- Title V

Resource Requests: Please use the Resource Request Excel template located on the Program Review web page to enter resource requests for equipment, supplies, staffing, facilities, and misc. resources needed. Send completed excel document along with completed program view core topic for signature.

Chairs and computers. See attached.

Program Review Signature Page:

Michael Wagner
Michael Wagner (Jun 27, 2024 10:50 PDT)

Program Review Lead

Date

Sean Abel
Sean Abel (Jun 27, 2024 10:51 PDT)

Program Dean

Date

[Signature]

Vice President, Academic Affairs

Date












ComputerScienceProgramReview2024

Final Audit Report

2024-07-08

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