

PROGRAM REVIEW Fall 2018

Program: Computer Studies (CIS/CNT/CS)

Division: STEM

Date: 10/15/2018

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SLO/SAO Point-Person: LaVaughn Hart

Audience: Deans, Vice Presidents of Student Services and Academic Services, All Planning and Allocation Committees. This document will be available to the public.

Uses: This Program Review will be used to inform the campus and community about your program. It will also be used in the processes of creating Division Summaries, determining College Planning Priorities and allocating resources. A final use is to document fulfillment of accreditation requirements.

Time Frame: This Program Review should reflect on program status during the 2017-18 academic year. It should describe plans starting now and continuing through 2018-19. This document also provides the opportunity to describe more long-term plans (optional).

Sections: The first section of this Program Review focuses on general program reflection and planning. The second section has specific questions to be filled out by all programs this year. The third section is an SLO/SAO update. The fourth section is a review of curriculum. Only programs with curriculum need to complete Section 4.

Topics: A list of topics of particular interest to Program Review readers can be found here:

<https://goo.gl/23jrxT>

Help: Contact Karin Spirn: kspirn@laspositascollege.edu

Instructions:

- 1) Please respond to each question as completely as possible.
- 2) If the requested information does not apply to your program, write "Not Applicable."
- 3) Optional: Meet with your dean to review this document before _____.
- 4) Send an electronic copy of this form to Karin Spirn and your Dean by _____.

Links:

Program Review Home Page: <https://goo.gl/XATqjJ>

Fall 2017 Program Review Updates : <https://goo.gl/pkv76m>

Frequently Asked Questions: <https://goo.gl/ilhRtt>

Section One: Program Snapshot

No Significant Changes Option

Contact person: _____

By marking an X in the box above, the writers of this Program Review indicate that there have been no significant changes to their program or their program's needs in the past year. In this case, programs may opt not to complete Program Review Section One: Program Snapshot.

Programs must still complete all other sections (as applicable).

Please note: Choosing this option means that your program's information may not be included in the yearly Division Summary.

The No Significant Changes Option may only be used for two years in a row; after two years, programs must complete a full Program Review including the Program Snapshot. Our program's most recent Program Review was submitted in the following semester: Fall 20_____.

- A. Program Description: Briefly describe your program, including any information or special features of your program that will provide helpful context for readers of this Program Review.**

The Computing Studies area includes three disciplines: Computer Information Systems (CIS), Computer Networking Technology (CNT) and Computer Science (CS). Courses and programs in these disciplines many areas of technology-related knowledge and skills. These disciplines provide educational opportunities for students to transfer to 4-year institutions, complete local degrees and certifications, address their career goals and retraining needs, and obtain computer skills at all levels from basic keyboarding to advanced networking, programming, system analysis, and database design and administration. Our programs are open to all students and we seek to address the learning needs of all the students who take our classes.

Due to the computer-focused nature of our disciplines, almost all courses, both face-to-face and DE, involve student use of specialized software and/or hardware, including standard computer lab rooms on campus (with appropriate discipline-specific software installed), specialized hardware setups in many CNT and some CS courses and student engagement in complex online tools, structured courseware environments and virtual lab environments beyond what is possible in standard course management platforms like Canvas.

- B. Changes to Program and Needs: Describe any significant changes to your program or your program's needs since the previous Program Review Update (Fall 2017).**

Immediately prior to beginning of the 2018-19 academic year, one of our two full-time CNT instructors resigned from that position, leaving a substantial challenge to staffing all CNT courses for the current academic year as well as impacting the non-instructional activities needed to support students and programs in that discipline. In addition, one of our two full-time CS instructors has announced his resignation as of the end of this (2018-2019) academic year. We have submitted position requests for replacements for both of these instructors, as well as for an addition full-time CS position.

The dramatic growth in enrollment in CS continues. Along with this growth, we are seeing a noticeable increase in student diversity, with the proportion of non-White students expanding steadily. Anecdotally, the CS program also has an increasing proportion of first-generation college students and veteran students.

The CS discipline has added several new part-time instructors, including 2 additional part-time instructors teaching for the first time in the Fall 2018 semester.

With the opening of Building 1000 in Fall 2018, several CS courses are able to be scheduled in the lab rooms in that building. This relieves the previously-described challenges with the availability of lab classrooms somewhat, but there remains a long-term challenge in having lab space that is of sufficient quantity and the right arrangement to sustain our programs.

We have entered into a partnership with Google to offer students a course sequence leading to a “Google IT Support Professional” Certificate (<http://laspositacollege.edu/cnt-google/>).

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt				
<input type="checkbox"/>	Community Partnerships/Outreach	<input checked="" type="checkbox"/>	Facilities, Supplies and Equipment, Software	<input type="checkbox"/>	LPC Planning Priorities	<input type="checkbox"/>	Services to Students
<input type="checkbox"/>	Curriculum committee items	<input type="checkbox"/>	Financial/Budgetary	<input type="checkbox"/>	LPC Collaborations	<input type="checkbox"/>	SLO/SAO Process
<input checked="" type="checkbox"/>	Enrollment Management	<input checked="" type="checkbox"/>	Human Resources	<input type="checkbox"/>	Pedagogy	<input checked="" type="checkbox"/>	Technology Use
<input type="checkbox"/>	External Factors	<input type="checkbox"/>	Learning Support	<input type="checkbox"/>	Professional Development	<input type="checkbox"/>	

C. Reflection: What plans from the [2017 Program Review](#) or any [previous Program Reviews/Updates](#) have been achieved and how? You may also describe achievements that were not planned in earlier Program Reviews.

The large quantity of courses needing updating, deactivating, etc., identified previously has now been substantially completed. Substantial progress has also been made in evaluation of degrees and certificates across our disciplines, with updates at the degree/certificate level going through the curriculum process now (Fall 2018).

Substantial work has been done in collaborating with our local IT team to resolve and update hardware/software needs and configurations in our labs on campus.

The Computer Studies set of web pages has been finalized and fully deployed, and physical posters with matching design and information have been put up in key locations on campus.

The previously-described successful incorporation of robotics technologies to provide an innovative and engaging learning experience in CS courses has continued, with discussions ongoing about seeking grant resources to obtain further physical computing materials.

Updates to course SLOs have been made as needed, based on updates to course curriculum overall and/or faculty evaluation of the relevance and effectiveness of the SLOs previously in place.

In Spring 2018, we were approached to become part of a nationwide effort to bring the Google IT Support Professional Certificate into community college credit-based programs. Beginning Fall 2018, curriculum for the Google IT Support Professional Certificate has been incorporated into four of our core CNT classes, CNT 51, CNT 52, CNT 55, and CNT 66. The beginning of the Google IT Support Professional Certificate partnership has so far been a success, contributing to increased enrollments in the CNT courses associated with the certificate. As part of joining this effort, LPC has been awarded a grant of \$30,000 to help with the costs associated with implementation. Additional funding has also been received from Strong Work Force to cover 90% of the costs of instruction for sections of CNT 51, 52, 55, and 69 for fall 18 and spring 19. Funded has been received.

In Spring 17, the Computer Studies Advisory board was reinstated and updated. While the entire advisory board did not meet in 17/18, we did meet with several members of the advisory board regarding specific projects. Our next Computer Studies Advisory Board meeting is set for November 15, 2018. We have been actively recruiting individuals for local business partners including, Kaiser, LLNL, WorkDay, etc.

Mark an X before each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt			
<input checked="" type="checkbox"/>	Community Partnerships/Outreach	<input checked="" type="checkbox"/>	Facilities, Supplies and Equipment, Software		LPC Planning Priorities		Services to Students
<input checked="" type="checkbox"/>	Curriculum committee items	<input checked="" type="checkbox"/>	Financial/Budgetary		LPC Collaborations	<input checked="" type="checkbox"/>	SLO/SAO Process
	Enrollment Management		Human Resources		Pedagogy		Technology Use
	External Factors		Learning Support		Professional Development		

D. IR Data Review: Describe any significant trends in your program’s data from the office of Institutional Research and Planning. (Note: Not all Programs have IR data packets available; if your program does not have a data packet, you may note that in the response box). You may also discuss any other data generated for your program by the Office of Institutional Research and Planning.

IR Data packets are available here: <http://www.laspositascollege.edu/research/progrev.php>

Course Success Rates Dashboard can be found at the bottom of this page:
<http://www.laspositascollege.edu/research/outcomes.php>

CIS:

Enrollments in CIS have been continued to fluctuate somewhat over the last several semesters, but course completion and success rates have trended upward during that time.

CNT:

Enrollments have generally continued to rise in the past few semesters. Across the discipline, success rates have risen noticeably over the past 3 years.

CS:

Enrollments have continued to exhibit particularly strong growth in this discipline, more than doubling between spring 2014 and spring 2018. Even with this growth, which is presumably driven in part by the perceived link to future job prospects, within the CS discipline students continue to overwhelmingly (>75%) indicate transfer as their educational goal. Student demographics, however, have shifted noticeably, with White students making an increasingly smaller percentage of CS students and the portion students identifying as Asian or Latinx rising steadily.

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt				
	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities		Services to Students
	Curriculum committee items		Financial/Budgetary		LPC Collaborations		SLO/SAO Process
X	Enrollment Management		Human Resources		Pedagogy		Technology Use
	External Factors		Learning Support		Professional Development		

E. Other Data Review (Optional): Describe any significant findings based on other data regarding your program. Possible sources of relevant information might include, but are not limited to, the following:

- o Data generated by your program
- o CEMC Data
- o Labor Market Data

CS faculty have done structured surveying of CS students to explore student interests and feedback. Results from these are consistent with the growth of enrollment in that discipline in general, with most students expressing a strong interest in continuing on to a 4-year CS degree. Another consistent pattern in student surveys, as well as more anecdotal feedback from students, is a desire to have “elective”-type CS/coding courses available locally, covering platforms and coding languages outside our core sequence.

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt				
	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities	x	Services to Students
x	Curriculum committee items		Financial/Budgetary		LPC Collaborations		SLO/SAO Process
	Enrollment Management		Human Resources		Pedagogy		Technology Use
	External Factors	x	Learning Support		Professional Development		

F. Impacts to Students (Optional): Discuss at least one example of how students have been impacted by the work of your program since the last Program Review Update (only if you did not already answer this in Questions B-E).

(Already addressed above.)

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt				
	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities		Services to Students
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	Enrollment Management		Human Resources		Pedagogy		Technology Use
	External Factors		Learning Support		Professional Development		

G. Obstacles: What obstacles has your program faced in achieving plans and goals?

With the complex needs and initiatives in the Computing Studies area, and both the potential benefit and difficulty collaborating with other STEM disciplines around shared/overlapping issues and goals, the lack of a dedicated STEM Coordinator to oversee and manage relevant resources and processes is a noticeable obstacle.

In the CS discipline, we now have a large number of courses taught by part-time instructors part-time instructors in CS, several of whom are relatively recent hires. With student enrollment increasing steadily at the same time, it is challenging to do the level of discipline-wide coordination and collaboration that would ideally happen to support consistency in the on-the-ground execution of our curricula and maximally support student success. It is critical that a third full-time faculty position be created to meet the needs of the CS program.

The long-term availability and configuration of computer lab space on campus remains an issue. See further comments in the Facilities section below.

In the Computer Studies fields, the need for constant upgrading for skills and retraining adds to the time commitment needed to be effective in our jobs. This requires significant additional time commitments by faculty. Some CNT classes require faculty to have specific industry certifications, which require time and funding—both of which in short supply.

We will continue to need additional part-time faculty for our disciplines as we add more classes. Finding qualified, available, and skilled part-time faculty in this area is always challenging. For similar reasons, finding replacements for the full-time faculty we have lost (or are about to lose) is a challenge.

With rising enrollment in our programs, there is an increased need for tutoring services for students in our courses. There are some CS peer tutors available, but we need to continue recruiting additional students. The tutoring center has begun getting additional requests for tutoring in CNT courses, but has no CNT-specific tutors. There is also a need for tutors for some CIS classes, specifically CIS 54, which needs to be addressed.

Each discipline in the Computer Studies area has only 1 or 2 full-time faculty who are responsible for the curriculum updates, program updates, equipment requests, etc. There simply isn't enough time to complete all this work plus the additional requirements that have been added, e.g., yearly program review, constant SLOs/PLOs tracking/updating/reporting, etc.

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt				
	Community Partnerships/Outreach	x	Facilities, Supplies and Equipment, Software	x	LPC Planning Priorities	x	Services to Students

	Curriculum committee items		Financial/Budgetary		LPC Collaborations	x	SLO/SAO Process
x	Enrollment Management	x	Human Resources	x	Pedagogy		Technology Use
	External Factors	x	Learning Support	x	Professional Development		

H. Short Term Planning: What are your most important plans (either new or continuing) for next year? Describe plans starting now and continuing through AY 2018-19.

The replacement of the two full-time faculty mentioned above (assuming the replacement positions are funded) will be an important task in 2018-19, with faculty in our area serving on hiring committees for these positions.

Rollout of the Google IT certificate program will continue. We will evaluate and discuss the success of this program and students' responses to it as needed. We will also be working with funding partner, Jobs for the Future (JFF), to determine what ongoing funding may be available to support this program in the future.

We will continue to evaluate and, as needed, update courses and programs/certificates to keep up with industry needs.

We will continue work on development of the CyberPatriots program.

We will continue working with IT staff to ensure hardware/software needs for courses in our programs are met.

We will engage, as we always do, in outreach to local/regional institutions and actors for several purposes relevant to our programs, including: partnership possibilities with employers, participation in advisory board(s), internship/employment opportunities for students, collaborative grants and other funding streams,

Our disciplines are and will continued to be involved in Guided Pathways work.

To the extent possible, we will work to address the professional-development and guidance needs of our part-time CS faculty, providing advice and resources to help cultivate a uniform vision and quality of instruction in CS courses.

Our disciplines will need to reflect on changes brought about by AB705. We may need to add or change what we have listed as required or strongly-recommended math course prerequisites for some courses.

We are continuing to work with the consortiums such as the Bay Area ICT to provide resources such as NetLabs for our students. Next spring, we will be working with local high schools and ROPs to update articulation agreements so reflect our updated curriculum particularly in the CIS and CNT areas.

With the retirement of two long-term CIS part-time faculty members, the CIS department will be embarking on a search for new part-time faculty and also reviewing the way that a number of our courses have been offered in the 803 computer lab.

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt				
x	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities		Services to Students

x	Curriculum committee items		Financial/Budgetary		LPC Collaborations		SLO/SAO Process
	Enrollment Management		Human Resources		Pedagogy		Technology Use
	External Factors		Learning Support		Professional Development		

I. Long Term Planning (Optional): Please detail any long-term plans for the next 3-5 years. (Only if you have significant plans, such as implementation of a grant project, creation of long-term initiatives including those using restricted funds such as Equity or SSSP, construction and outfitting of a new building).

In Fall 2018, in collaboration with an external research organization, we submitted a grant proposal to the NSF IUSE (Improving Undergraduate STEM Education) solicitation. If funded, this grant will lead to the development and implementation of a “Code Jam” program for students heading into CS1 without any prior programming experience. This is driven by data (and anecdotal experience) telling us that, although CS1 requires no prior coursework or experience, success rates in the course are not as high as we would like, and some “true beginner” (i.e. completely novice) students especially struggle in the course. Combined with the steadily growing enrollment and increased diversity among students entering the discipline, we are also aware of students’ self-efficacy and sense of belonging as a critical success factor, particular for women and students from underrepresented minority groups. The Code Jam program would attempt to address some of these issues, offering a one-week intense preparation experience somewhat parallel to the College’s already successful Math Jam, to provide a “no-stakes” on-boarding experience, geared especially to complete novices, that is fun, engaging, and structured with the aim of building baseline familiarity with coding concepts as well as counteracting certain negative student perceptions of the discipline and/or themselves. If funded, the grant would help fund 3 instances of Code Jam beginning in August 2019. Assuming the program itself is successful and we judge it worthy of continuing, we would work on the appropriate curriculum and other arrangements needed to institutionalize Code Jam going forward, including the creation of a noncredit sequence and certificate.

It will be very important over the next 3-5 years to continue our involvement with the development and implementation of the Facilities Master Plan. With the impending destruction of building 800 to make way for new space for the sciences and art, we will need to be actively involved in ensuring that the open computer lab, and lab spaces for our classes are built and furnished appropriately.

Mark an X before to each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxr			
x	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities	x	Services to Students
	Curriculum committee items	x	Financial/Budgetary		LPC Collaborations		SLO/SAO Process
	Enrollment Management		Human Resources	x	Pedagogy		Technology Use
x	External Factors	x	Learning Support		Professional Development		

Section Two: Current Topics (Required for All Programs)

A. Educational Master Plan: A list of goals and strategies appears on page ii of the Educational Master Plan, which can be accessed here:

http://www.laspositacollege.edu/about/assets/docs/LasPositas_Ed_Master_Plan.pdf

If applicable, describe how your program’s upcoming plans reflect the goals described in the college’s Educational Master Plan (your plans are described in Section 1, Questions H-I, or on a previous program review if you did not complete this year’s Program Snapshot).

Our plans align with several strategies linked to Educational Excellence (goal A) and community collaboration (goal B). The CTE nature of many of our programs and courses, along with intended development of Code Jam, ongoing work with the Google IT certificate, guided pathways and CyberPatriots, constitute discipline-relevant forms of these strategies:

- A1. Address the educational needs of a diverse student population and global workforce.
- A2. Support existing and new programs.
- A5. Assist underprepared students.
- A6. Focus on workforce readiness.
- B2. Update programs to serve workforce needs.
- B3. Develop and strengthen private and public sector partnerships.

B. Program-Set Standard (Instructional Programs Only): Did your program meet its program-set standard for successful course completion? yes no

Program-set standard data can be found on this page:
<http://www.laspositacollege.edu/research/outcomes.php>

If your program did not meet your program-set standard, discuss possible reasons and how this may affect program planning or resource requests.

N/A

C. Facilities: Do you have any facilities needs that are currently unmet? If yes, please describe.

The lab classrooms in building 1000 partially help alleviate our space crunch for scheduling classes, but our computer labs for the Computing Studies program as a whole are still spread across the campus. We still need a space for labs for all of the programs as well as a large open lab for Computer Studies students and students from all other disciplines to work on assignments and develop their computer skills. The space would also have a large open computer lab area similar to the 803 computer lab, with individual labs and, as appropriate, specialized hardware and software configurations (e.g., a computer workroom supporting the A+ program and an updated Cisco lab) located around the perimeter. One possible configuration is shown below. Ideally, offices for Computer Studies faculty would be located near the new Computer Studies Lab to facilitate greater interaction between Computer Studies faculty and increased accessibility for our students. We would also like to incorporate a display area for computer equipment from a historical perspective.

D. Professional Development

Section 87153 of California Education Code specifies the type of Professional Development activities that may be funded by the Community College Professional Development Program. You can review these activities here: <https://goo.gl/w8sqBM>

D1. Summarize the aspects of professional development that have been working well for your program. This might include the process of obtaining funds, the types of training your program members have been attending, etc.

Individual faculty, particularly in CNT, regularly attend industry-sponsored and professional-association training events, as well as opportunities for dialogue with potential industry and community partners (e.g., Kaiser Permanente) as they arise. Processes and procedures for obtaining funds work well, and our faculty are able to find numerous relevant opportunities in the local region.

D2. Summarize any needs, desires and visions your program has regarding professional development, as well as any challenges.

The limited availability of conference funding is a challenge in the technology-centered disciplines represented in the Computing Studies area. There are conferences and workshops that would provide beneficial training and/or partnership-building opportunities, but with high price points that Professional Development funds cannot cover.

E. Program Suggestions (optional): What questions or suggestions do you have regarding the Program Review forms or process?

None.

Section Three: SLOs/SAOs (Required for All Programs)

A. In the box below, copy and paste your “Plans for Analysis of SLO/SAO Data” from last year’s Program Review. This plan can be found in the [2017 Program Review](#) Section 1 Question L.

(If discussing multiple PSLO/SAOs copy the box below as needed.)

Circle One: <u>CSLO</u> PSLO SAO
Course, Program Name, or Student Service Area: CS 1
Text of CSLO/PSLO/SAO: Create and use overloaded functions and operators in C++, including friend functions.
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO. [N/A]

B. Below, report on your program’s progress on the plan described in Question (A) above.

Text of CSLO/PSLO/SAO: Create and use overloaded functions and operators in C++, including friend functions.
SLOs: Assessment data collected from 5 sections over 3 semesters.
Describe the quantitative or qualitative results: Student assessments data consistently shows a large portion of students at the Above Average and Mastery levels for this SLO. These two levels account for almost 70% of students overall (across the 3 semesters), and in individual semesters account for between 63% and 83% of students.
Discuss and reflect upon student achievement for this CSLO/PSLO/SAO. Discuss any actions taken so far (and results, if known) and your action plan for the future: These results are generally satisfactory, and the lowest results are for the semester furthest in the past. We intend to simply monitor assessment results for this particular SLO going forward. It will be particularly important and interesting to look for variation between sections as part of our process for working to support newer part-time instructors and develop their skills.
What changes in student achievement are evident across the semesters you analyzed? What are some possible explanations for these changes? The most recent 2 semesters we have data from have noticeably stronger results than the earliest semester examined. This probably reflects both full-time and part-time instructors getting an opportunity to teach the course multiple times in a row, tweaking their materials and approach to teaching this topic as they learn from experience.
DO you plan to continue tracking this SLO in the next year? Explain. Yes.

C. Planning: What are your future plans (either new or continuing) for SLO/SAO analysis for next year? Identify the PSLOs, CSLOs, or SAOs that your program plans to focus on the upcoming year with subsequent analysis (next year's program review). (Copy the box below as needed.)

Circle One: <u>CSLO</u> PSLO SAO
Course, Program Name, or Student Service Area: CS2
Text of CSLO/PSLO/SAO: Design and implement programmer-created C++ classes, using encapsulation and inheritance.
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO.

D. SLO/SAO Suggestions (optional): What questions or suggestions do you have regarding SLO/SAO planning, assessment and reporting?

None.

**Section Four: Curriculum Review
(Programs with Courses Only)**

The following questions ask you to review your program's curriculum. To see the last outline revision date and revision due date:

1. Log in to CurricUNET
2. Select "Course Outline Report" under "Reports/Interfaces"
3. Select the report as an Excel file or as HTML

Curriculum Updates

A. Title V Updates: Are any of your courses requiring an update to stay within the 5 year cycle? List courses needing updates below.

CIS 46 (possible deactivation) CIS 50 (in process) CIS 72B (in process)	CNT 51 (in process) CNT 7401 (in process)	CS 46 (possible deactivation) CS 17 (in process)
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B. Degree/Certificate Updates: Are any degrees/certificates requiring an update to do changes to courses (title, units) or addition/deactivation of courses? List needed changes below.

Updates to degrees and certificates due to the course updates and deactivations are being completed this (Fall 2018) semester.

C. DE Courses/Degrees/Certificates: Detail your department's plans, if any, for adding DE courses, degrees, and/or certificates. For new DE degrees and/or certificates (those offered completely online), please include a brief rationale as to why the degree/certificate will be offered online.

We do not plan any fully DE courses or certificates.
In general, we have many courses that are offered in DE or hybrid format. Also, within the curriculum process, new courses and course updates generally include a request for DE approval. During scheduling of courses for a particular semester, decisions about offering DE format are based on prior feedback from both students and instructors, student demand, and other considerations about the appropriateness of course content to be offered in DE format.