



2016-17 ALUR Divisions (Planning Units)

SMT Sciences, Mathematics, and Technology

I.A. What is the purpose of the unit and how does it contribute to the mission of Skyline College? (**Profile: Unit Purpose**)

Completed

Not Applicable

Narrative

Skyline College's Science, Math, and Technology division serves a diverse community of learners and provides student-centered education leading to transfer to baccalaureate institutions and career employment. The division provides students with multi-disciplinary courses of study in science, math, and allied health and technology career programs. Students develop critical thinking, communicate in written and oral form, develop computer and information literacy, and engage in citizenship.

Associated Objectives



[270-STEM Center Support Services](#)

I.B. Which programs or functions are contained within the unit? (**Profile: Programs**)

Completed

Not Applicable

Narrative

The following programs are housed in the Science, Math, Technology (SMT) division: Administrative Medical Assisting, Biology, Biotechnology, Chemistry, Earth Sciences (Environmental Science, Geology, Oceanography), Emergency Medical Care, Engineering & Computer Science, Energy Systems Technology Management, Health Sciences, Mathematics, Network Engineering Technologies and Electronics, Physics & Astronomy, Respiratory Care, and Surgical Careers (Anesthesia Technology, Central Services Technology, and Surgical Technology).

First Year Experience (FYE) and Math Academy learning communities are also housed in the SMT division. The emerging STEM center also includes the MESA Center and FAB LAB.

Associated Objectives

 [270-STEM Center Support Services](#)

I.C. List the current service area outcomes for the unit. **(Profile: Service Area Outcomes)**



___ Completed

___ Not Applicable

Narrative

1. *Students served will have access to a breadth and quality of lower division education to effectively complete certificates and associates degrees (including associate degrees for transfer), and to enable transfer to baccalaureate institutions*
2. *Students served will receive quality career and technical education and training in cooperation with business, industry, labor, and public service agencies to become employable in their industry of choice*
3. *Students served will receive support in developmental skills to support their success as they progress through their academic goals*
4. *Students will experience a variety of services and division sponsored events related to science, math, and technology that will enhance and support their academic goals*

Associated Objectives

-  [276-Allied Health and Simulation Lab Personnel Support](#)
-  [270-STEM Center Support Services](#)

II.A. Review data related to the administrative unit and assess the unit's effectiveness at meeting its described purpose. Data should include, but is not limited to, the CPRs/APPs submitted within the last year by programs within the administrative unit.

Describe the unit's effectiveness including identification of achievements and/or areas in which further effort is needed. Comment on progress made towards previously established unit objectives. **(Analysis: Unit Effectiveness)**

___ Completed

___ Not Applicable

Narrative

The SMT division last year identified the following goals in supporting the overall Skyline College Promise:

- Revision of curriculum, certificates, and degrees for Biotechnology program. These are in alignment with the pilot community college BS in Biomanufacturing degrees.
- Establishment of a STEM center to support all students in declaring a STEM major. District innovation funds have been allocated to hire a Program Services Coordinator who will provide support as the STEM center is built out. An HSI-NSF grant has been submitted and results of awards will be provided in September.
- Increase hybrid and online instruction to support access and help address decreased classroom space during construction of new buildings. 4 faculty have undergone distance education training and will build out online courses to offer beginning Fall 2018.
- The budding STEM center has provided embedded tutoring support for various discipline STEM courses through funding from the SVEPT grant for the 2017-2018 academic year. The goal is to increase retention and success. Success rates will be reviewed in Spring for Fall offerings.
- SMT has been collaborating with the Career and Workforce Programs department to support marketing and recruitment strategies for CTE programs. The work is continuing to increase enrollment in lower enrolled programs such as Administrative Medical Assisting, Biotechnology, and Energy System Management Technology.
- Math faculty are streamlining the basic skills Math courses for students needing preparation for transfer level courses. Beginning Fall 2018, the longer pathway in the algebra sequence will no longer be scheduled (Math 111, Math 112, Math 122, Math 123). Faculty are also engaging in professional development regarding pedagogical practices to improve student success.

II.B. Describe the progress on service area outcomes, conclusions drawn, and expected use of results. (**Analysis: Progress on Outcomes**)

___ Completed

___ Not Applicable

Narrative

Quality CTE Programs - Respiratory Care has maintained high certification and employment rates. Surgical Technology continues to struggle with retention and success and certification participation. The retention and success for the 2016 reporting is still below threshold at 55%. However, there is an upward trend for the most recently graduated class. The participation rate for certification must be at 100%. Beginning this academic year all student will be provided a preparation course and be required to take the certification exam upon completion.

The SMT division continues to provide a variety of services and division sponsored events related to science, math, and technology to enhance and support academic goals. These include: Expanding your Horizons, Science Symposium, SMT and S-STEM Scholarship, MESA center, SACNAS student attendance, Science in Lecture Series, Respiratory Care – Surgical Technology job fairs, Sustainability Action Network meetings, Earth Day. Clubs - Phi Theta Kappa, American Medical Student Association, SACNAS, Skyline Environmental Go Green, Respiratory Care, Robotics, Skyline Science and Research, Surgical Technology. The division is prioritizing a STEM center to be located on the 3rd floor of building 7 and will provide full academic and student support services for any student who identifies in STEM.

II.C. Describe key factors and changes impacting the unit such as college initiatives, industry needs, regulatory changes, state mandates, grant requirements, personnel changes, demand for classes/services, and other issues. (**Analysis: Unit Environment**)

___ Completed

___ Not Applicable

Narrative

- Skyline College Promise and redesign in guided pathways
- Continued increased student interest in STEM academic/career pathways
- Continuation of grant funding for Career Advancement Academies
- Final year of grant award – SVETP for Biotechnology, Engineering, and ICT
- S-STEM grant award - 3 year funding for STEM scholarships.
- State funding tied to collaboration across education systems (K-12, higher education) and industry
- Continuation of CTE Enhancement Funds – 200 million for BACCC
- Multiple measures placement for students into transfer level math courses
- Model practices in supporting acceleration and success through the math sequence
- Legislation allowing baccalaureate degree offerings at CA community colleges for Respiratory Care and Biomanufacturing

II.D. Describe the current staffing structure of the unit and how it aligns with achieving the purpose of the unit. Attach the current organizational chart (an image of the org chart can be inserted in the box). Provide staffing FTE by category (FT/PT faculty, permanent staff, temporary staff, student workers, administrators).

HINT: To display the information in a table, it is easiest to create the table in Word and paste into the narrative box. **(Analysis: Unit Personnel)**

___ Completed

___ Not Applicable

Narrative

Skyline College’s Science, Math, and Technology division serves a diverse community of learners and provides student-centered active and relevant pedagogical education leading to degree attainment, transfer to baccalaureate institutions, and career employment. The division provides students with multi-disciplinary courses of study in science, math, and allied health and technology career programs. Students develop critical thinking, communicate in written and oral form, develop computer and information literacy, and engage in citizenship.

The current organizational structure for SMT is as follows:



Current staffing positions to support the SMT division's missions and goals are:



Identified is each category of position in the SMT division and total employee FTE:



III.A. Considering the previous analysis, identify unit strengths, challenges, opportunities, concerns, and areas in which further research is needed. Describe how the conclusions drawn can be used to improve the unit's effectiveness in order to promote student learning and achievement. (**Reflection: Considering Key Findings**)

___ Completed

___ Not Applicable

Narrative

There are a high number of students pursuing STEM educational pathways. This division provides educational support for 35% of the colleges FTES. Career technical education programs provide relevant training for successful employment. Many STEM disciplines continue to struggle with retention, success, and persistence through to completion of a degree or transfer. Discipline faculty would like to see these metrics as it relates to progression in the pathway and across disciplines as students need to Math and Chemistry as a component of almost every STEM major. This data can help identify where there are bottle necks in success for students in various transfer sequences and can help inform discussions for interventions and strategies.

The Math department has instituted multiple measures as a way to help students accelerate in their first level placement Math class. Data showing student preparation prior to their first course and retention, success, and persistence will be crucial in assessing where students are successful and continue to struggle in their progression. There are various strategies being considered to support student success. These strategies include embedded tutoring, co-requisite instruction, and faculty professional development.

III.B. Based on the CPRs/APPs for programs within the unit, identify any potential areas of synergy across unit and program activities that may not be easily recognized from within individual programs. **(Reflection: Synergy)**

___ Completed

___ Not Applicable

Narrative

There is synergy across the division regarding creation of a STEM center that would provide a central resource for students as they complete their pathway in a STEM major. The STEM center will bring together academic and student support services in a central area where students can easily access resources for success through their STEM pathway with special attention for those who are under-represented and under-prepared. Services and resources proposed are academic tutoring, counseling services, resource depository for STEM pathways and transfer, hub for internships and work based learning opportunities, as well as a place where students and staff can collaborate and build community and supportive connection. All this aimed at supporting successful academic completion, transfer, and/or industry placement opportunities.

A high fidelity health simulation lab has been approved and remodeling of the Allied Health computer lab will be completed over summer 2017. Allied health students from all programs can directly benefit from simulated case studies through focused discipline and multidisciplinary scenarios. Allied Health faculty will undergo professional development that will support simulation teaching and learning. Launch of simulation teaching and learning is expected beginning Spring 2018.

Through the Silicon Valley Engineering Pathways Trust grant, embedded tutoring will be offered for various Math and STEM transfer courses. Courses will be identified based on where students struggle in successful completion. A short term temp Program Services Coordinator will be supported via the S-STEM NSF grant. The PSC (with supervision from S-STEM PI) will oversee the development and launch of this embedded tutoring program. the goal is to increase success for students in their transfer pathway courses.

III.C. Describe the aspirations of the unit. What is the preferred future of the unit? What long-term results does the unit want to achieve? Strategically thinking about the next 2-5 years, how can resources be leveraged and programs work together to achieve those long-term results? (**Reflection: Aspirations**)

___ Completed

___ Not Applicable

Narrative

Overall, many strategies are underway to support successful completion of student's educational goals. Over the past year, the SMT division and departments have implemented various strategies to improve success to achieve the college that 75% of students will meet their educational goals on time. This would include students who wish to enter the workforce, obtain an associate degree, and/or transfer. Institutionalized strategies will include:

- The STEM center in which academic and student support resources integrated and allow students a place in which they feel welcome and supported to meet their educational goals.
- Multiple measures for Math placement in which a student is placed in their first course at or above a transfer level.
- Embedded tutoring programs and case management to aid in retention and success in their courses.
- Continuing professional development that supports faculty in integrating active teaching and learning strategies that provide students will relevant hands on instruction.

IV.A. Based on the reflection, develop an annual action plan with related resource requests. No narrative response will be entered in this section, but the objectives you create will be printed automatically in the ALUR report under this item.

(1) To begin, click on PLANNING at the top of the page, then CREATE A NEW OBJECTIVE. To view previously created objectives, click PLANNING at the top of the page, then VIEW MY OBJECTIVE.

(2) IMPORTANT! Make sure to associate each objective to this standard in the ALUR and link each objective to one or more Institutional Goals.

Need help? Contact the PRIE Office for further instructions. **(Strategy for Unit Enhancement: Action Plan and Resource Requests)**

___ Completed

___ Not Applicable