

# Santa Rosa Junior College

## Program Resource Planning Process

### *Earth and Space Sciences 2023*

#### 1.1a Mission

**Updated Spring 2023**

The primary purpose of the Earth and Space Sciences' (ESS) varied programs is to provide an interdisciplinary approach to studying the Earth, Earth processes, the environment, and astronomical bodies and phenomena. We strive to promote awareness of the human impact on our surroundings and the relevance of ESS disciplines to our lives.

We strive to generate interest in science and to provide a foundation in the Earth and Space Sciences which students can ultimately apply towards an ESS-related major, GE-transfer, and/or towards pursuing personal interest goals.

Finally, ESS courses attempt to connect the academic realm with the real world, providing students with the theoretical and hands-on skills and knowledge to take what they learn in the classroom and apply it to their daily lives. We work to ensure that our students become responsible and informed global citizens.

Ideals of the ESS Department:

- Foster and celebrate academic excellence from students and faculty
- Offer a wide range of course options for students, including various modalities and locations
- Support faculty in maintaining currency in their field(s)
- Attract and serve a diverse student body and foster diversity within our department
- Create and maintain a welcoming, inclusive, and anti-racist environment

#### 1.1b Mission Alignment

**Updated Spring 2023**

*How is the program/unit mission consistent with the District's Mission and Strategic Plan Goals?*

The ESS Department Mission is consistent with the District's recently updated Mission, Vision and Values statement in that we are committed to promoting student learning in order to serve our diverse community. See *Ideals* above.

This aligns with Goal C of the 2014-2019 strategic plan:

**Goal C: Serve our Diverse Communities**

Serve our diverse communities and strengthen our connections through engagement, collaboration, partnerships, innovation, and leadership.

- Identify the educational needs of our changing demographics and develop appropriate and innovative programs and services with a focus on the increasing Latino/a population.
- Contribute the richness of our multicultural community by promoting cultural initiatives that complement academics and encourage the advancement and appreciation of the arts.
- Meet the lifelong educational and career needs of our communities (e.g. seniors, merging populations, veterans, re-entry students).
- Provide relevant career and technical education that meets the needs of the region and sustains economic vitality.

## 1.1c Description

### Updated Spring 2023

The ESS Department houses multiple disciplines, including Astronomy, Earth Science, Environmental Science, Geography, Geology, Meteorology, and Physical Science. The department primarily serves general education (GE) transfer students.

Courses are offered in several different formats. Lecture, laboratory, hybrid, web-enhanced (blended), online, and field-based courses are offered to serve transfer students, students seeking a two year degree, students working towards professional development (including teachers), and self-enrichment students. The department has developed fully online options for most courses. We seek to successfully prepare students who intend to major in Earth or space science fields.

The ESS Department has 5 full time faculty: 3 at the Santa Rosa campus and 2 at the Petaluma campus. The department has around 10 associate faculty teaching per semester. The Department is committed to offering a wide variety of GE transfer classes at the Santa Rosa and Petaluma campuses, and online.

## 1.1d Hours of Office Operation and Service by Location

### Updated Spring 2023

#### Santa Rosa Campus:

Earth and Space Sciences instructor in-person hours vary, but typically Monday through Thursday from 9 AM to 3 PM in the ESS Department offices. There is no administrative support staff assigned to the department at this time.

#### Petaluma Campus:

Earth and Space Sciences instructor in-person hours vary on campus. Laboratory Coordinator is available Monday through Thursday from 9 AM to 3 PM, in Room 324 E Wing.

## 1.2 Program/Unit Context and Environmental Scan

### Updated Spring 2023

- Have there been any changes in the transfer requirements for this major, particularly at CSU or UC campuses or at other common transfer destinations in this discipline? If so, describe those.
- Are there trends in industry or technology that could affect this discipline or major?
- Are there new trends in general education or basic skills that affect courses in this discipline or major?
- What partnerships or cooperative ventures exist with local employers, transfer institutions, or other community colleges?

Courses within the ESS department primarily serve GE-transfer students. We have modified our programs to better serve the student population by increasing online offerings and incorporating various teaching modalities. We see a growing need for knowledge and skills particularly in environmental and water-related subjects. All Earth science related disciplines provide necessary skills and knowledge for a variety of in-demand career fields. We hope to meet many of these trends by updating existing courses and developing new offerings, and creating ESS-related majors.

Have there been any changes in the transfer requirements for this major, particularly at CSU or UC campuses or at other common transfer destinations in this discipline? If so, describe those.

The ESS department houses the Environmental Studies major. We moving towards offering TMC majors for geography and environmental science. An ESS faculty member is serving as the lead reviewer for C-ID for environmental science.

Are there trends in industry or technology that could affect this discipline or major?

N/A

Are there new trends in general education or basic skills that affect courses in this discipline or major?

N/A

What partnerships or cooperative ventures exist with local employers, transfer institutions, or other community colleges?

N/A

## 2.1a Budget Needs

**Updated in Spring 2023**

Describe areas where your budget might be inadequate to fulfill your program/unit's goals and purposes.

Our supply and graphics budget were slashed in 2018-2019. As we return to campus and enrollment increases, the departmental budget will be insufficient. We likely will not have sufficient funds to meet the graphics needs of our department. We typically use the supply budget for office supplies and for replacement of various consumables and small demo equipment that breaks. Our supply and graphics budgets will need to increase as needed.

The study of Earth and Space is most effective when students experience the subject outside the classroom by attending field trips. Field trips are currently offered in several classes including geology, environmental science and astronomy. In most cases, students are required to provide their own transportation in order to participate in field trips. The Department would like to provide transportation for class field trips, in addition to expanding our field trip offerings. Additional funds are needed for vehicle expenses, which cannot be charged to students according to the California Code of Regulations.

The Department has acquired a great deal of new equipment, including telescopes and microscopes that need regular repair and maintenance. We recently lost our telescope technician (retirement incentive) and there are no plans to replace them. We now have no one on campus trained in telescope and microscope maintenance or trouble shooting. In order to protect our investment in new equipment, we need to establish a maintenance and repair budget so that equipment can be serviced on an annual basis. The Biological Sciences Department receives funding for microscope maintenance, and we are asking for equity.

If you need additional funds, please explain.

We need a restoration of supply and graphics funds commensurate to our needs.

We need creation of a maintenance fund that would be used to maintain telescopes and microscopes in good working order. We also need money to pay a contractor to help with setup and maintenance of our Augmented Reality Sandboxes.

Additional funds are needed to cover vehicle expenses and to augment student costs for existing and future field trips.

## 2.1b Budget Requests

Rank	Location	SP	M	Amount	Brief Rationale
0001	ALL	04	01	\$6,000.00	Maintenance budget for telescope, microscope and other equipment maintenance.
0002	Santa Rosa	06	01	\$2,000.00	Restoration of Budget, Supply, and Field Trip funds close to 2017-2018 levels.
0003	ALL	02	01	\$3,000.00	Expand field trip offerings for ENVS 12, GEOL 1L, GEOL 7 (additional sections / different locations), GEOL 11, ASTRON 12 (different locations)

## 2.2a Current Classified Positions

Position	Hr/Wk	Mo/Yr	Job Duties
Coordinator, Science Labs	15.00	12.00	Supply ordering, equipment organization, helps with facilities, lab, and classroom setup (Petaluma).

## 2.2b Current Management/Confidential Positions

Position	Hr/Wk	Mo/Yr	Job Duties
Department Chair	13.60	10.00	Budget/financial, scheduling, hiring, faculty and staff evaluations, facilitate regular department meetings, coordinate adjunct faculty, etc.
Department Chair (summer)	2.74	2.00	Budget/financial, scheduling, hiring, faculty and staff evaluations, facilitate regular department meetings, coordinate adjunct faculty, etc.

## 2.2c Current STNC/Student Worker Positions

Position	Hr/Wk	Mo/Yr	Job Duties
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## 2.2d Adequacy and Effectiveness of Staffing

### Updated in Spring 2023

Does the program have adequate classified, management, STNC staff, and student workers to support its needs? If not, explain program/unit needs.

No.

We lack administrative support, and rely entirely on AA's from other departments.

We lack an instrument technician to maintain department equipment.

We lack a planetarium technician, and the planetarium is in disrepair. We are currently dipping in the Planetarium Trust Fund for essential maintenance so that we can use the Planetarium to support our classes.

We want to hire a student worker[s] or STNC to support our lab classes but our woefully low budget can't support this.

Does your program/unit have any unfilled vacancies or positions that have been eliminated? If so, how are you accomplishing the work that must be performed? What impact does this have on your program/unit?

Yes. We currently have no Administrative Assistant and as such this work is falling to the department chair and other ESS Dept. and district staff. We also lost our instrument technician (there are no plan to replace them) and as a result, maintenance on telescopes and microscopes is not being completed. Therefore, we are not accomplishing the work that must be performed. Instructors are fixing issues that they can on the fly, as encountered. Larger issues - beyond instructor experience - are not being fixed. This impacts our program/unit by eroding morale, costing more money in the long run due to deferred maintenance/equipment failure, and resulting in worse outcomes for students.

## 2.2e Classified, STNC, Management Staffing Requests

Rank	Location	SP	M	Current Title	Proposed Title	Type
0001	Santa Rosa	08	07	VACANT: Administrative Assistant II	IN RECRUITMENT: Administrative Assistant II	Classified
0002	ALL	04	07	None	Earth & Space Science SLIA / Equipment Technician	Classified
0003	Santa Rosa	04	01	None	Planetarium Technician	Classified
0004	Santa Rosa	04	07	None	Astronomy SLIA	Classified

## 2.3a Current Contract Faculty Positions

Position	Description
Geology Instructor	Rebecca Perloth, GEOL at the Santa Rosa campus. Current department chair.
Geography / Environmental Science Instructor	Katie Gerber, GEOG and ENVS at the Santa Rosa campus.
Astronomy Instructor	Keith Waxman, ASTRON at the Santa Rosa campus.
Astronomy Instructor (Petaluma)	Laura Sparks, ASTRON at the Petaluma campus.
Earth Science Instructor (Petaluma)	David Kratzmann, GEOL and ENVS at the Petaluma campus.



## 2.3b Full-Time and Part-Time Ratios

Discipline	FTEF Reg	% Reg Load	FTEF Adj	% Adj Load	Description
ASTRON	2.0200	48.4400	2.1500	51.5600	Astronomy has two full time instructors. Both Astronomy FT instructors regularly perform overload assignments to attempt to staff our classes. We are constantly having difficulty finding enough associate instructors to staff our Astron classes.
ENVS	0.7000	70.0000	0.3000	30.0000	Two full time instructors each teach a few ENVS classes as part of their load. The remainder is taught by associate faculty.
ERTHS	0.0000	0.0000	0.0000	0.0000	The only ERTHS class available is ERTHS 49, which is assigned to the department chair when offered.
GEOG	0.4000	28.5700	1.0000	71.4300	One full time instructor teaches a few geography classes as part of their contract load. The remainder is taught by associate faculty.
GEOLOGY	0.8000	53.3300	0.7000	46.6700	Most geology classes are taught by full time instructors as part of their contract load, but one has 34% release time due to chair duties. Some semesters, all geology sections are taught by full time faculty.
METRO	0.0000	0.0000	0.2000	100.0000	All meteorology sections are taught by associate instructors. There is no full time instructor with meteorology subject matter expertise.
PHYSC	0.0000	0.0000	0.0000	0.0000	When Physical Science classes are taught, they are taught solely by adjunct instructors.

## 2.3c Faculty Within Retirement Range

**Updated in Spring 2023**

One full-time astronomy faculty member and full-time one geography/environmental science instructor are within retirement range. There are at least 5 associate faculty members within retirement range (55+ years).

## 2.3d Analysis of Faculty Staffing Needs and Rationale to Support Requests

**Updated in Spring 2023**

**ASTRON** – Due to ongoing schedule reductions, we have recently been able to meet our current staffing needs. However, with anticipated associate faculty retirements within the next year or two, we will need to recruit additional associate faculty members. Historically, it has been difficult to staff classes in this discipline due to a lack of available qualified instructors. Specifically, very few people possess a graduate degree in Astronomy and/or Physics, and SSU does not offer a graduate degree in these disciplines. We generally conduct associate instructor interviews whenever a qualified candidate applies for the pool. Interviews were last conducted in April 2019 and no one was added to the pool due to a lack of qualified candidates. We currently have four associate astronomy instructors who regularly teach for us (two also teach at other institutions). One of them lives in San Mateo, and we went to great lengths to recruit them to come teach our weekend classes. Additional associate interviews will be conducted whenever a qualified applicant applies. Hiring an additional full-time faculty in Astronomy would alleviate these concerns, as we have nearly 2 FTEF currently taught by associates or as part of full-time faculty overload.

**ENVS** – Both faculty members that teach ENVS have split assignments (e.g ENVS / Geog or ENVS / Geol). The minimum qualifications for ENVS are broad and instructors in geology and geography are often able to teach ENVS as well. We currently have adequate associates available for this discipline. Interviews were conducted in Spring 2018, and one new associate from this hiring round has been teaching with us since the Fall of 2019.

**GEOG** – We currently have adequate staffing for geography, but 3 of our geography associates are within retirement range. Associate instructor interviews were last conducted in April 2019 and no one was added to the pool due to a lack of qualified candidates.

**GEOL** – We currently have adequate staffing for geography, but our only current associate has just announced retirement at the end of Spring 2023. Due to ongoing schedule reductions, we are currently able to meet our staffing needs. Interviews were most recently conducted in April 2019 and no one was added to the pool due to a lack of qualified candidates.

**METRO** – We have no contract faculty in meteorology. We have just one associate instructor in meteorology, but he is within retirement age. Due to budget cuts and reduced meteorology offerings,

we have adequate coverage with our existing associate instructors. Our current associate is within retirement age.

As a department, we plan to look at our applicant pools to conduct interviews as needed in anticipation of schedule expansion and impending retirements.

### 2.3e Faculty Staffing Requests

Rank	Location	SP	M	Discipline	SLO Assessment Rationale
0001	Santa Rosa	02	01	ASTRON	An additional instructor will allow us to bring stability and predictability to the class schedule.

## 2.4b Rationale for Instructional and Non-Instructional Equipment, Technology, and Software

Updated in Spring 2023

### INSTRUCTIONAL EQUIPMENT

**Full classroom technology refresh including Solstice.** (Approval received, project not yet started) We have requested this for 3 classrooms/labs in Lark Hall, which are slated for technology upgrades in the near future, as all classrooms and lab spaces are outdated. 2009 is priority #1, and is a 95 seat lecture hall utilized by the Earth & Space Sciences Department and many other departments across campus. 2039 is priority #2, and this room is used by Astronomy, Environmental Science, and Materials Science. 2049 is priority #3, utilized by Geography and Environmental Science. All classrooms should have Solstice included in the upgrade.

**Digital SLR Cameras** for Astronomy labs. A set of used Digital SLR cameras was purchased several years ago using funding from the Friends of the Petaluma Campus trust. Older, used cameras were purchased to save money. These will need to be replaced with newer models within the next five years as they become outdated and begin to fail. This supports Student Learning Outcomes for Astronomy. Four new cameras were purchased in 2018, so we still need seven more. Qty. 7 @ \$2,000 each = \$14,000

**Laptops** for Astronomy labs. Laptops are needed to support labs conducted with the digital cameras. This supports Student Learning Outcomes for Astronomy.

**HD projector and projector screen.** (Approval received, project not yet started) The projector and screen were removed during a recent technology make-over in PC211 including a high resolution TV (which is now also the only projection system for this classroom). The TV is small and positioned such that students have difficulty viewing it. The TV is fine for high resolution and fine color viewing, but adding an HD projector and projector screen into the room will facilitate student learning and accessibility of the subject matter material. The projector and screen will provide larger images (larger screen) in a more convenient location in the classroom.

**Upgrade Planetarium.** The SRJC planetarium needs equipment upgrades and refurbishment. This facility is integral to the Astronomy program here at SRJC, and other disciplines (e.g. geography) would use the facility if it was updated for academic use. Additionally the planetarium is regrettably no longer meeting its potential by serving the community. The planetarium is in disrepair due to long-standing neglect of equipment and facilities and starvation of resources.

**Laser projectors for the Planetarium.** We need 2 high quality laser projectors to support academic use of the planetarium.

## 2.4c Instructional Equipment Requests

Rank	Location	SP	M	Item Description	Qty	Cost Each	Total Cost	Requestor	Room/Space	Contact
0001	Santa Rosa	04	01	IELM APPROVED: full classroom technology refresh including Solstice + Hyflex	1	\$41,500.00	\$41,500.00	R. Perloth	Lark 2009	K. Gerber & R. Perloth
0002	ALL	01	01	DSLR Cameras with modifications	7	\$2,000.00	\$14,000.00	L. Sparks	Lark Storage	L. Sparks
0003	Santa Rosa	04	01	IELM APPROVED: full classroom technology refresh including Solstice + Hyflex	2	\$37,500.00	\$63,000.00	R. Perloth	Lark 2039 & 2049	K. Gerber & R. Perloth
0004	ALL	04	01	Laptop Charging Cart (approve with laptops)	1	\$2,000.00	\$2,000.00	L. Sparks	Lark Storage	K. Waxman & L. Sparks
0005	ALL	04	01	Laptops for image processing (approve with cart)	10	\$1,500.00	\$15,000.00	L. Sparks	Lark 2039	K. Waxman & L. Sparks
0006	Petaluma	04	01	MOVED TO PET PRPP: add HD projector and projector screen	1	\$30,000.00	\$30,000.00	D. Kratzmann	PC211	D. Kratzmann & L. Sparks
0007	Santa Rosa	04	01	Brunton Instructor Kit	1	\$900.00	\$900.00	K Gerber	Lark Storage	K Gerber
0008	Santa Rosa	04	01	Solar Classroom Kit	1	\$550.00	\$550.00	K Gerber	Lark Storage	K Gerber
0009	Santa Rosa	04	01	Alternative Energy Kit	1	\$750.00	\$750.00	K Gerber	Lark Storage	K Gerber
0010	ALL	04	01	Earth Sciences Models	1	\$1,350.00	\$1,350.00	K Gerber	Lark Storage	K Gerber

### 2.4d Non-Instructional Equipment and Technology Requests

Rank	Location	SP	M	Item Description	Qty	Cost Each	Total Cost	Requestor	Room/Space	Contact
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### 2.4f Instructional/Non-Instructional Software Requests

Rank	Location	SP	M	Item Description	Qty	Cost Each	Total Cost	Requestor	Room/Space	Contact
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## 2.5a Minor Facilities Requests

Rank	Location	SP	M	Time Frame	Building	Room Number	Est. Cost	Description
0001	Santa Rosa	03	05	Urgent	Lark Planetarium	Planetarium	\$10,000,000.00	(MEASURE H) Planetarium: Perform renovation to Planetarium space: Fix roof, fix ventilation, replace dome, knock out decorative interior wall, replace chairs in new layout, replace sound system and lighting system, redo electrical system.
0001	Santa Rosa	02	01	Urgent	Lark Hall	2009	\$0.00	Replace existing carpet and countertop, replace chair cushions.
0003	Santa Rosa	02	01	Urgent	Lark Hall	Room 2030	\$0.00	MEAS H: Convert room to a demonstration classroom outfitted for interactive learning with movable tables and chairs.
0004	Santa Rosa	06	07	Urgent	Lark Hall	all	\$0.00	Paint exterior and interior of building. Replace rotted wood trim.
0005	Santa Rosa	02	01	1 Year	Lark	2042, 2046	\$0.00	Replace existing display cases with ones with lighting and glass doors
0006	Santa Rosa	04	05	1 Year	Lark Hall	Lab/Storage space	\$0.00	Repair and replace SAREX equipment for communicating with Astronauts on board the International Space Station. Needs accompanying staff to support this resource.



## 2.5b Analysis of Existing Facilities

### Updated Spring 2023

The ESS Department is located in the southern wing of Lark Hall. Facilities that the Department regularly uses include a 90-person lecture hall (2009), four lab and or lab/lecture classrooms (2030, 2039, 2042, and 2049), and a storage and work area. The Department offices include 6 offices and an open work space. These offices are shared with Biological Sciences associate faculty. Although there is adequate space at current staffing and class offering levels, the building and its associated equipment are out-of-date. Additionally, we will be sharing our space with Physics and Materials Engineering until the Lindley Center opens (anticipated Fall 2023).

**Bathrooms.** The Lark Hall bathrooms are tantamount to a dungeon. They often flood, have an unpleasant odor, and poor lighting. The feminine hygiene receptacles suffer from black mold and pose a hazard. There are intermittent water pressure failures. Additionally, they are neglected by custodial staff. They do not feel safe; the floors pose a trip and slip hazard. They need to be demolished and replaced.

**Upgrade Planetarium.** The SRJC planetarium needs equipment upgrades, roof repairs, and refurbishment and/or renovation. This facility is integral to the Astronomy program here at SRJC, as well as serving community outreach efforts, although community outreach has been suspended due to lack of financial support. It has become very difficult to find replacement parts for the outdated and obsolete equipment. We hope to obtain funding to renovate the planetarium in the near future. A planetarium basic refresh can likely be completed for 2.5 million dollars, though the renovations needed to make this a truly upgraded facility will run approximately \$10 million. When compared to the cost of building a new planetarium, this is a great deal.

**Lecture Classroom 2009:** This classroom is used for lecture-based courses by ESS and other departments. The Department would like to replace the existing carpet with either new carpet or some other form of flooring. The chair cushions also need replacement. Several chairs are broken and the fold-down desk non-functional. The countertop is unsightly and badly worn. The room is in desperately urgent need of renovation.

**New Paint and Building Maintenance:** The outside of the building is in serious need of cleaning and painting. There are areas where the wood trim is decayed and needs to be replaced. The interior offices and classrooms are also in need of painting.

**Rock Displays.** New efforts are being made to beautify the ESS/Geology area as a result of recent donations. We would like to display and highlight the department's collection (especially the new fluorescing samples) in lighted display cases. These could be installed in 2042 to replace the existing display cases, and in 2046 to replace open shelves and to better utilize space.

**SAREX.** SAREX equipment is needed for communicating with Astronauts on board the International Space Station (used in outreach and potentially in planetarium shows)

## 3.1 Academic Quality

Updated Spring 2023

### 3.1 STRATEGY 1: ACADEMIC QUALITY

In this section, list anything that your program/unit has done to support Strategy 1: Academic Quality:

#### **Goal 1: Ensure quality of courses and andragogy across disciplines and modalities.**

- Promote robust professional development and maintain professional development resources on culturally responsive andragogy and practices that are annually reviewed and updated.

#### **Goal 2: Inspire and prepare students for transfer, degree or certificate completion, and lifelong learning through critical thinking and civic engagement.**

Faculty participate in professional development activities related to our individual disciplines, in addition to development opportunities in teaching pedagogy and andragogy, including various Communities of Practice, conferences, and workshops. Faculty pursue improvement in online teaching practices and diversity, equity, and inclusivity. We review, update and improve our course materials continually. We do not have an official annual review process, but we do confer regularly as a department, share best practices, experiences, recommendations, and assignments.

The Earth and Space Science Department has one transfer degree (Environmental Studies), which prepares students to transfer in an environmental related field. Students engage with critical thinking and civic engagement through field trips, projects, discussions, and personal reflection. Even though we don't have multiple established majors, we still advise students planning to transfer to a 4-year school in one of our disciplines.

All of our course in all 7 disciplines are GE transferrable, and we support students planning to transfer. ESS courses encourage critical thinking through problem solving, discussion, role playing, project completion, etc.

## 3.2 Student Success and Support

Updated Spring 2023

### 3.2 STRATEGY 2: STUDENT SUCCESS AND SUPPORT

In this section, list anything that your program/unit has done to support Strategy 2: Student Success and Support:

#### **Goal 1: Build a culture and ecosystem that creates a sense of belonging and purpose for all students.**

- Prioritize student services events and activities which sustain a community committed to student learning and development

## **Goal 2: Leverage basic needs services in support of student success while at the college and in the community.**

- Provide all students with comprehensive learning opportunities on accessing basic needs in support of wellness.

We think a Canvas module that can be utilized by all Departmental faculty and incorporated into Canvas courses each semester, highlighting resources available for students is a great idea. We reached out to the VP of Student Services, who has indicated that 3 new Canvas modules are currently being developed for this purpose, to be launched by Fall 2023: 1) B:CARE, 2) Student Services, and 3) Mental Health and the 6 realms of wellness.

These are resources that will benefit ALL courses in ALL departments at SRJC.

## **3.3 Responsiveness to Our Community**

**Updated in Spring 2023**

### **3.3 STRATEGY 3: RESPONSIVENESS TO OUR COMMUNITY**

In this section, list anything that your program/unit has done to support Strategy 3: Responsiveness to our community:

#### **Goal 1: Offer SRJC programming that impacts all members of our community.**

- SRJC programs regularly assess their purpose in relation to diverse needs in education, community, and economics.

#### **Goal 2: Provide equitable access to District opportunities in recognition of diversification in county population.**

*All new and updated policies, procedures, and practices will be reviewed to ensure equitable access to District opportunities (i.e., programs, enrollment, and employment).*

Our Department has embraced the use of Open Education Resources to try to reduce the cost of education for our students. We continue to offer online and hybrid sections in most disciplines to offer increased access to GE courses for students. We offer in person and Zoom (online) office hours to help students gain access to faculty.

Faculty are participating actively in professional development activities associated with equity, diversity and inclusion, such as various Communities of Practice, conferences, professional development workshops, etc.

Before it was shut down, the Planetarium used to provide outreach to school communities by bringing school aged students to the SRJC campus. Just as the demographics of Sonoma County's youth have shifted to be more black and brown, we have stopped offering this outreach program. We feel that we are doing a dis-service to the community AND to SRJC. Those school aged students were future SRJC students, and by not tapping into this audience and encouraging them when they are young, they may not feel any connection to SRJC when they leave high school.

Faculty participate in community outreach such as public speaking engagements, field outings, and observing sessions, representing the Earth and Space Sciences Department and the JC as a whole. We regularly assist members of the public, on campus and virtually, identify rock and meteorite (meteowrong) samples.

## 3.4 Campus Climate and Culture

Updated Spring 2023

### 3.4 STRATEGY 4: CAMPUS CLIMATE AND CULTURE

In this section, list anything that your program/unit has done to support Strategy 4: Campus Climate and Culture:

**Goal 1: Formalize a campus climate that is culturally aware and prioritizes efforts in support of inclusion, diversity, equity, antiracism, and accessibility (IDEAA).**

- Establish and regularly assess an identifiable campus climate and culture for everyone who interacts with SRJC.

**Goal 2: Promote a community culture of sustainability.**

- Identify annual goals for sustainability, including the creation and regular assessment of a District Sustainability Plan that achieves the Presidential Climate Commitment.

It is not up to one department to formalize or establish a campus culture and climate. That said, we can contribute to and participate in establishing a culture based on IDEAA by updating our COR's, syllabi, and course materials to further support IDEAA principles. We can facilitate department-wide discussions around IDEAA at SRJC.

We will participate with regularly assessing our departmental alignment with SRJC's Sustainability goals as they are developed.

The ESS Department is uniquely positioned to reach and engage students in topics related to environmental and planetary sustainability. Our courses touch on topics including climate change, human impact on the environment and the Earth, policy and environmental justice, and impacts on human culture.

## 4.1a Course Student Learning Outcomes Assessment

Updated Spring 2023

- **SLO assessments are now archived in the SLO Assessment Share Point site. Be sure all program/unit assessments are posted there. For instructions, go to the SLO website at <http://slo.santarosa.edu/>**

- **How have course SLO assessment results over the past three years, including the current year, been used to improve student learning at the course level? (Note: All assessments should be documented in the SLO Assessment Tracking System in SharePoint.)**

SLO assessments are used by individual instructors to monitor their classes and to make changes as needed. In some cases the assessments provide baseline data and no specific changes are made. In other cases, the instructor is attempting to assess a particular technique or topic and using the information to make changes within their classes. The Department discusses SLO Assessments at department meetings. Instructors within individual disciplines engage in ongoing discussions about improving course content and assessment techniques based on the results of SLO assessments.

**ACCJC Accreditation Standards require an ongoing, systematic assessment of all courses and programs. Within each 7 year accreditation cycle, SRJC must establish documented improvements in student learning where warranted.**

## 4.1b Program Student Learning Outcomes Assessment

Updated Spring 2023

- **In the text block provided, describe your department/discipline seven-year cycle of assessment.**

The ESS Department only has one major, and the major has been updated in Spring 2023. We have a goal to assess the Environmental Studies major at least once every seven years, starting in the 2023-2024 academic year. The courses within this major are largely outside the ESS Department, making assessment challenging.

- **What certificates/majors(s) has the program/unit assessed over the past three years?**

We have not assessed the Environmental Studies major in the past three years.

- **How have the results been used to improve student learning at the certificate/major level?**

Although we have not formally compiled the course SLO assessment results into a major assessment, we have participated in an ongoing dialog about ways to improve the Environmental Studies major. In Spring 2023, we added ENVS 8, Global Climate Change, to the Environmental Studies major as a core course.

- **ACCJC Accreditation Standards require an ongoing, systematic cycle of assessment of all certificates and majors, even low-unit certificates. At SRJC, our cycle is that all of the SLOs in every certificate/major must be assessed at least once every seven years.**

- **For information and instructions on how to assess certificate and major SLOs, go to this web site:**  
<http://slo.santarosa.edu/certificates-majors-slo-assessment>

**4.1c Student Learning Outcomes Reporting**

Type	Name	Student Assessment Implemented	Assessment Results Analyzed	Change Implemented
Course	ASTRON 3 - #1 (LS)	Fall 2012	Spring 2013	Fall 2012
Course	ASTRON 3 - #1 (LS)	Fall 2013	Spring 2014	Spring 2014
Course	ASTRON 3 - #2 (LS)	Spring 2011	Spring 2011	Fall 2011
Course	ASTRON 3 - #2	Spring 2014	Summer 2014	Fall 2014
Course	ASTRON 3 - #2 (KW)	Fall 2015	Spring 2016	N/A
Course	ASTRON 3 - #3 (LS)	Fall 2010	Fall 2010	N/A
Course	ASTRON 3 - #3 (LS)	Fall 2011	Spring 2012	Spring 2012
Course	ASTRON 3 - #3 (KW)	Fall 2011	Fall 2011	N/A
Course	ASTRON 3 - #3 (KW)	Fall 2014	Fall 2014	N/A
Course	ASTRON 3L - #1	Spring 2014	Spring 2014	Fall 2014
Course	ASTRON 3L - #2	Spring 2014	Spring 2014	Fall 2014
Course	ASTRON 3L - #3	Spring 2014	Spring 2014	Fall 2014
Course	ASTRON 3L - #3	Fall 2013	Fall 2013	Spring 2014
Course	ASTRON 3L - #3	Fall 2013	Fall 2013	Spring 2014
Course	ASTRON 4 - Waxman	Spring 2009	Spring 2009	Spring 2010
Course	ASTRON 4 - #1 (LS)	Spring 2013	Summer 2013	Fall 2013
Course	ASTRON 4 - #2	Fall 2014	Fall 2014	Spring 2015
Course	ASTRON 4 - #3	Spring 2014	Spring 2014	Fall 2014
Course	ASTRON 4 - #4 (LS)	Fall 2010	Fall 2010	Spring 2011
Course	ASTRON 4 - #4 (LS)	Spring 2011	Summer 2011	Fall 2011
Course	ASTRON 4 - #4 (LS)	Fall 2011	Spring 2012	Spring 2012
Course	ASTRON 4L - #1 (LS)	Spring 2011	N/A	N/A
Course	ASTRON 4L - #2 (AP)	Fall 2014	Fall 2014	N/A
Course	ASTRON 4L - #2 (AP)	Fall 2014	Spring 2015	Fall 2015
Course	ASTRON 12 - #1 (LS)	Spring 2011	Summer 2011	N/A
Course	ASTRON 12 - #1 (KW)	Spring 2011	Summer 2011	N/A
Course	ASTRON 12 - #1 (KW)	Fall 2011	Spring 2012	Spring 2012



Type	Name	Student Assessment Implemented	Assessment Results Analyzed	Change Implemented
Course	ASTRON 12 - #1 (LS/JF)	Fall 2011	Spring 2012	Spring 2012
Course	ASTRON 12 - #2 (KW)	Fall 2012	Fall 2012	N/A
Course	ASTRON 12 - #3 (LS)	Fall 2013	Fall 2013	Spring 2014
Course	ASTRON 12 - #4	Spring 2014	Spring 2014	Fall 2014
Course	ASTRON 12 - #5	Spring 2014	Spring 2014	Fall 2014
Course	ASTRON 12 - #5 (LS)	Fall 2014	Fall 2014	Spring 2015
Course	ENVS 12 - #1	Fall 2013	Spring 2014	Spring 2015
Course	ENVS 12 - #2	Fall 2013	Spring 2014	Spring 2014
Course	ENVS 12 - #3	Spring 2014	Summer 2014	Fall 2014
Course	ENVS 12 - #4	Fall 2013	Spring 2014	Spring 2014
Course	ENVS 12 - #5	Spring 2014	Summer 2014	Fall 2014
Course	ENVST 40 - #1	Spring 2014	Summer 2014	Spring 2015
Course	ERTHS 49	Spring 2014	N/A	N/A
Course	ERTHS 85.1 - #1	Fall 2014	Fall 2014	Fall 2015
Course	ERTHS 85.1 - #2	Fall 2013	Fall 2013	Fall 2014
Course	ERTHS 85.1 - #3	Fall 2014	Fall 2014	Fall 2015
Course	ERTHS 85.1 - #4	Fall 2012	Spring 2013	Fall 2013
Course	ERTHS 85.1 - #5	Fall 2014	Fall 2014	Fall 2015
Course	ERTHS 85.2 - #1	Spring 2014	Spring 2014	Spring 2015
Course	ERTHS 85.2 - #2	Spring 2014	Spring 2014	Spring 2015
Course	ERTHS 85.2 - #3	Spring 2014	Spring 2014	Spring 2015
Course	ERTHS 85.2 - #4	Spring 2011	Spring 2011	Spring 2012
Course	GEOG 3 - #2	Fall 2015	Spring 2016	N/A
Course	GEOG 3 - #5	Fall 2014	Fall 2014	Spring 2015
Course	GEOG 4 - #2	Spring 2014	Summer 2014	Fall 2014
Course	GEOG 4 - #3	Spring 2010	N/A	N/A
Course	GEOG 4 - #3	Spring 2011	Summer 2011	Fall 2011

Type	Name	Student Assessment Implemented	Assessment Results Analyzed	Change Implemented
Course	GEOG 4 - #3	Spring 2011	Summer 2011	Fall 2011
Course	GEOG 4 - #4	Fall 2013	Spring 2014	Fall 2014
Course	GEOG 4 - #5	Spring 2014	Summer 2014	Fall 2014
Course	GEOG 7 - #1	Spring 2014	Spring 2014	N/A
Course	GEOG 7 - #2	Fall 2014	Spring 2015	Fall 2015
Course	GEOG 7 - #3	Fall 2014	Spring 2015	Fall 2015
Course	GEOG 7 - #4	Spring 2014	Spring 2014	N/A
Course	GEOG 7 - #5	Fall 2014	Spring 2015	Fall 2015
Course	GEOL 1 - #1	Spring 2014	Spring 2014	Fall 2014
Course	GEOL 1 - #2	Fall 2013	Fall 2013	Spring 2014
Course	GEOL 1 - #3	Spring 2012	Summer 2012	Fall 2012
Course	GEOL 1 - #4	Spring 2014	Summer 2014	Fall 2014
Course	GEOL 1L - #1	Spring 2012	Spring 2012	Fall 2012
Course	GEOL 1L - #1	Spring 2012	Spring 2012	Fall 2012
Course	GEOL 1L - #2	Spring 2011	Spring 2011	Fall 2011
Course	GEOL 1L - #2	Fall 2011	Summer 2011	Spring 2012
Course	GEOL 1L - #2	Spring 2013	Spring 2013	Fall 2013
Course	GEOL 1L - #3	Spring 2014	Summer 2014	Fall 2014
Course	GEOL 1L - #4	Spring 2014	Summer 2014	Fall 2014
Course	GEOL 11 - #1	Fall 2014	Spring 2015	Spring 2015
Course	GEOL 11 - #2	Fall 2013	Fall 2013	Spring 2014
Course	GEOL 11 - #3	Fall 2012	Fall 2012	Spring 2013
Course	GEOL 11 - #4	Fall 2014	Fall 2014	N/A
Course	GEOL 11 - #5	Fall 2014	Fall 2014	Fall 2015
Course	GEOL 7 - #1	Summer 2014	Summer 2014	Summer 2015
Course	GEOL 20	N/A	N/A	N/A
Course	METRO 10 - #1	Fall 2014	Fall 2014	N/A

Type	Name	Student Assessment Implemented	Assessment Results Analyzed	Change Implemented
Course	METRO 10 - #3	Fall 2014	Fall 2014	N/A
Course	METRO 10 - #4	Spring 2014	Spring 2014	Fall 2014
Course	METRO 10 - #5	Fall 2015	Spring 2016	N/A
Course	METRO 10L	N/A	N/A	N/A
Course	PHYS 21 - #1	Spring 2015	Spring 2015	Spring 2016
Course	PHYS 21 - #4	Spring 2015	Spring 2015	Spring 2016
Certificate/Major	Environmental Studies	Fall 2014	Fall 2014	Fall 2015
Certificate/Major	Natural Sciences	Fall 2014	Fall 2014	Fall 2015

#### 4.2a Key Courses or Services that address Institutional Outcomes

Course/Service	1a	1b	1c	2a	2b	2c	2d	3a	3b	4a	4b	5	6a	6b	6c	7
ASTRON 12	X	X	X	X			X	X		X	X			X		
ASTRON 3	X		X				X	X		X	X					
ASTRON 3L	X	X	X				X	X		X	X			X		
ASTRON 4	X		X				X	X		X	X					
ASTRON 4L	X	X	X				X	X		X	X			X		
ENVS 12			X	X			X	X		X	X	X	X	X		X
ENVS 8			X	X			X	X		X	X	X	X	X		X
ENVST 40			X	X	X		X	X		X	X	X	X	X		X
ENVT STUDIES MAJOR			X	X	X		X	X		X	X	X	X	X	X	X
ERTHS 85.1			X	X			X	X	X	X		X		X	X	X
ERTHS 85.2			X	X			X	X	X	X		X		X		X
GEOG 3			X	X			X	X		X			X	X	X	
GEOG 4			X				X	X		X	X					
GEOG 7			X	X			X	X		X	X		X	X	X	
GEOL 1			X				X	X		X	X					
GEOL 11			X				X	X		X	X					
GEOL 1L	X		X				X	X		X	X			X		
GEOL 20	X		X				X	X		X	X	X				X
GEOL 7			X	X			X	X		X		X		X		X
METRO 10			X				X	X		X	X					
METRO 10L	X	X	X				X	X		X	X			X		
PHYSC 21	X		X				X	X		X	X			X		

## 4.2b Narrative (Optional)

Updated Spring 2023

Explain how your program/unit has participated in dialogue about SLOs over the past three years.

We have discussed our SLO assessment plan and how our course SLOs align with institutional SLOs at multiple department meetings and as we update the PRPP. This has led to rich conversations about improving our teaching.

## 5.0 Performance Measures

Reviewed Spring 2023

This section allows programs/units to define and report on their own unique workload and performance measures. The program/unit should identify any unique non-academic data elements that provide insight into the quantity and quality of the services you provide. Trend data is particularly helpful.

You can copy and paste tables or charts in the text block provided. If section 5.0 is not relevant to you, just state "not applicable."

Not applicable to the ESS Department.

## 5.1 Effective Class Schedule: Course Offerings, Times, Locations, and Delivery Modes (annual)

Updated Spring 2023

- Is the program offering a **balanced** class schedule convenient to students with day, evening, Friday, and weekend courses, as needed? Explain.

Few sections are currently being offered on campus. We are hoping to increase our on-campus presence in Fall 2023, and again in Spring 2024. Unfortunately, we sometimes have to cancel in person sections due to low enrollment, or shift the format of a section to online in order to fill the section. In person, we offer as diverse a schedule as possible at this time, with day and evening sections available. We are incorporating many online and hybrid sections into the schedule in hopes to cater to more students wishing to come to campus fewer times per week. In the future, we could offer some Saturday/weekend classes if we had more staffing.

Additionally, we offer courses that are full-semester length, and others that are short format, 15 weeks (Transfer Track in Petaluma), to accommodate students with varying time constraints and availability.

- Is the program offering a good **geographic distribution** of classes, at Santa Rosa, Petaluma, Public Safety Training Center, and other sites? Explain.

Yes, pre-COVID, nearly 30% of students in the duplicated headcount measure were at Petaluma, while the rest were at Santa Rosa. Our department seeks to offer a robust schedule on the Petaluma campus. We have very few offerings on the Petaluma Campus during summer school because the demand is much stronger in Santa Rosa.

- Does the program effectively use **alternative delivery modes** when appropriate such as online, online hybrid, or video transmission? Explain.

Sections are offered in a variety of delivery modes, including entirely online (synchronous or asynchronous), hybrid format, and face-to-face. We plan on expanding our multi-modality offerings, including potentially offering HyFlex style courses in future semesters. More sections will be returning to campus in coming semesters, but many will still offer some online content, to be considered hybrid or blended.

- Is there demand for specific courses that is not being met? If so, what is the plan to address this?

Demand is currently unclear, as we are in a state of transition coming out of COVID.

- Could the program do a better job of serving students, and if so, how? State specific recommendations.

We need to discuss whether we can offer an appropriate online lab option. There is demand for online science labs, but we are not sure if these can be achieved in a pedagogically appropriate way. We are still trying to figure out the optimum balance of online, hybrid, and face-to-face offerings for our courses.

- If the program/unit has a pattern or trend of declining or unstable enrollments over the past four years, what adjustment of course scheduling has the program implemented to address this? (For example, changing times of day, block scheduling, online offerings, short courses, adjusting frequency and number of sections, open entry-open exit classes, or rotation plans.)

We've seen declined enrollment in every class due to the COVID pandemic. We have been experimenting with flexible offerings in an attempt to maximize enrollment.

- Are course offerings being scheduled frequently enough or in rotation to assure that students can complete the program within the stated duration of the program or within a "reasonable" time frame (often interpreted to be two years, but it could be longer)?

Yes. The only degree we currently offer is the Environmental Studies interdisciplinary major. Unfortunately many of the electives in this major are controlled by other departments and are not offered very frequently or at enough times. However, we have been able to provide suitable course substitution offerings to students so that they are able to complete their degrees quickly.

- Describe any marketing efforts or outreach activities geared to increasing enrollments, if applicable.

We used to have the Planetarium, which was instrumental in generating enthusiasm and excitement within our department. However the college has cut all of its funding.

## 5.2a Enrollment Efficiency

Updated Spring 2023

If your enrollment efficiency (fill rate) is **below 85%**, consider the following questions:

- Is the department scheduling more sections than demand warrants, particularly multiple sections of the same course?
- If the discipline has certificates or majors that are heavily sequenced or have many course requirements, could the required courses be offered on a rotation plan so that students secure the courses that they need within a one, two, or three year time frame? If so, students should be kept informed of the pattern.
- Does the program appeal primarily to day students or to evening students? Do you see different patterns of enrollment in day or evening that should be addressed?
- Could this program benefit from offering some sections online or through other delivery mechanisms, where greater flexibility might attract more students?

Our overall enrollment efficiency for all disciplines and all locations during the fall and spring semesters ranged from a low of 83.6% in Spring 2022 to a high 102.3% in Fall 2020. It is difficult to assess trends with data from this time period because of the challenges faced with converting to online instruction in Spring 2020 and the gradual return to in-person offerings. Summer efficiency over the past four years has varied from 78.6% in 2019 to a high of 118.8% in 2020. The number of sections and disciplines that are offered in summer vary depending on instructor availability and student demand.

Our enrollment efficiency within particular disciplines (e.g. meteorology, geology, geography, and environmental studies) has dropped below 85% only twice in the last few years (covering 11 academic terms).

The Environmental Studies course, Environmental Forum (ENVST 40) is consistently below 85%. It should be noted that the class limit is set intentionally high at 50 but enrollment has varied from a low of 27 to a high of 48 during this time period. Efficiencies for the Forum were 54% (S2020), 96% (S2021) and 72% (S2022). This class is a required course within the Environmental Studies major and is only offered in Spring. Other classes that dipped below 85% during the time period included geography (78.3% in S2020), meteorology (60% in S2022), and astronomy (82.1% in S2022). These figures are for all campuses. Traditionally, efficiency is lower for Petaluma sections.

We regularly address our efficiency numbers by cutting sections as needed and offering courses at varied times and using different modalities. Prior to the transition to online learning in Spring 2020, the Department had no online sections. We are transitioning many of our courses back to in-person and are also experimenting with hybrid and other multi-modal formats.

If your enrollment efficiency (fill rate) is **above the efficiency goal**, explain briefly how you maintain that efficiency.

If your enrollment efficiency (fill rate) is **very near or over 100%**, it is quite possible that courses or programs are impacted. Consider the following questions:

- Can more courses be added to serve student needs?
- Is the discipline impacted for lack of instructors? If so, you should address your recruitment challenges (Section 2.3d) and perhaps justify the need for more full-time faculty (Section 2.3e).

- *Is the discipline impacted for lack of space? If so, please explain your space needs and also include requests for new or additional space (Section 2.5a and 2.5b).*

There are many factors that contribute to variations with efficiency with our courses that we have had over the past four years. Traditionally, Astronomy and Environmental Science both have efficiencies that are very near or over 100%. These numbers will vary based on the number of sections that are offered.

Astronomy is impacted by a lack of instructors and we anticipate a greater impact with one upcoming retirement. We have put in for an additional astronomy faculty member but are not optimistic that our position will be ranked high during this budget climate.

Environmental Science is more efficient and higher demand than some of our other areas, but we believe that sacrificing other areas to increase our number of Astronomy and Environmental Science sections would be short-sighted and would deprive students of opportunities to meet their educational goals.

Our courses are not impacted by a lack of space.

## **5.2b Average Class Size**

### **Updated Spring 2023**

- *Explain any trends in average class size, whether increasing or decreasing.*

Our class sizes vary by discipline, class type (lecture vs. lab vs. field class) and location. We offer astronomy classes that range from 30 - 198 people. Most of our other disciplines have class size limits ranging from 25-35 students. When taking this into account, the class sizes among similar types of classes in a discipline have remained fairly constant.

- *Explain any limits on class size, such as pedagogical limits, regulatory mandates, or facilities constraints.*

Our two main Earth Science classrooms on the Santa Rosa campus are fairly small. Room 2042 can only seat 25 students, while room 2049 can seat 30. Our main classroom on the Petaluma campus can seat 30-40 students depending on the furniture configuration. It is hard to seat more than 30 comfortably for an interactive class. Our field classes are limited by safety concerns. We only feel it is safe to be out in the field with 20 students per instructor. We offer some double sections with 2 instructors for 40 students. Some of our astronomy classes are offered in extended lecture format with class sizes from 90 up to 198.



## 5.3 Instructional Productivity

### Updated Spring 2023

- If your program's productivity ratio is **17.5 or higher**, describe how you maintain that productivity.

Astronomy has high productivity, staying at or above 17 consistently during the past four spring/fall semesters, with slightly lower numbers during the summer. This productivity is maintained by offering a several extended lecture courses with class limits of 198 and 90. The Environmental Forum (ENVST 40) is consistently higher than 17.5 except for S2020, which was the start of the COVID pandemic.

- If your program's productivity ratio is **lower than 17.5**, explain any circumstances that contribute, such as limitations of facilities, regulations, special pedagogy, or scheduling challenges.

The other disciplines are all under 17.5. There are two main factors limiting the productivity.

First, we offer many lab science classes. For pedagogical reasons, labs need to have small class sizes because instructors give one-on-one feedback and attention during class as well as supervising the hands-on use of equipment. Second, our lecture classrooms are fairly small as mentioned in section 5.2b.

- Explain any trends that you see in productivity.

Productivity has remained fairly stable except for a dip in S2022. Productivity seems to have increased since then. We have cut sections when enrollments were low to boost productivity over the past years. Thus our productivity numbers have not changed much despite declining enrollment.

- Recommend ways the program could improve productivity.

By continuing to offer some hybrid/online/multi-modality sections we hope to boost enrollment and thus productivity in a few courses. To meet student needs, we have often quickly transitioned sections to alternate modalities to ensure the section will fill prior to classes starting. If the college tied load and pay in extended lecture to the exact number of students at census (rather than tying it to tiered thresholds), then more instructors would be incentivized to work in extended lecture format, boosting productivity greatly. We believe this is an important step the district could take that would have positive implications for productivity district-wide.

## 5.4 Curriculum Currency

### Updated Spring 2023

As of May 2023, all ESS curriculum is up-to-date. We keep track of courses and update as they come up for review.

## 5.5 Successful Program Completion

### Updated Spring 2023

The Environmental Studies major is an interdisciplinary major. Several of the core courses for this major are housed within our department.

- Describe any course sequencing or course rotation plans that allow a student to complete their certificate/degree/major in a reasonable time frame.

ENVST 40 - Environmental Forum is a required course within the major and is offered every spring semester. During Spring 2023 the class was offered in a multi-modal format with students choosing between taking the class in person or asynchronously online. Guest presentations were recorded and made available for online students. This format allows for greater flexibility for students to complete the major and will be continued in the future.

Students are also required to complete a 1-unit of work experience or community engagement class. These classes are offered all year, including during summer.

Students in the major are required to complete 12 units from a set of 8 core courses. Among these, only two are in the ESS Department: ENV 12 - Introduction to Environmental Science and ENV 8 - Climate Change. Both ENV 12 and ENV 8 are offered every semester. When staff is available, ENV 12 is also offered during summer. For Fall 2023, we are attempting to bring back in-person sections for ENV 12 at both the Santa Rosa and Petaluma campuses. There are also several sections of ENV 12 online. Currently one section of ENV 8 is offered online. We would consider adding additional sections as demand for courses grow.

NRM 12 and BIO 12 are generally offered during both the Fall and Spring semesters and as of Fall 2022, PHIL 12 is being offered in both Fall and Spring. Political Science 12 (POLS 12 and formerly SOCS 12) is offered only in the spring semester. There are two courses, ENGL 10 and ECON 12, that are not currently offered. Both classes are still active and were not

removed from the major. However as enrollment is low, it is hard to support enrollment for these courses.

- Does the program offer support or services to help students complete certificates, licensure, or majors? If so, describe those.

The ESS Department is very flexible in arranging course substitutions and independent studies to help students complete the major if they are having trouble making the core courses fit into their schedules. Individual instructors help students to find suitable community involvement / work experience placement. The Environmental Forum is now offered in a multi-modal format with both an online and in-person option.

- Review the trends in numbers of degrees or certificates awarded, and, if possible, explain the trend. Data are posted on the PRPP web site: [www.santarosa.edu/prpp](http://www.santarosa.edu/prpp).

Below is a recap of the number of students completing the major in its various forms over the past 10 years. Clearly this is a small major however the numbers of students completing the major is increasing.

Year	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
# majors awarded	2	10	12	7	7	9	5	11	14

- If available and applicable, provide data about student success rates on licensure exams or external/industry examinations or certifications. (Note: you can copy and paste that information into this text block.) If applicable, recommend ways to improve certificate, licensure and major completion overall and by targeted groups, as appropriate. "Targeted groups" could be defined by gender, age, ethnicity, disability status and income.

Not applicable.

- If these data are available, what has been the history of employment or job placement following the certificate or majors in your program/unit? What is the employment outlook over the next three years? If applicable, recommend ways to improve employment or job placement.

No data is currently available. To access this type of information a follow up survey would need to be conducted.

## 5.6 Student Success

### Updated Spring 2023

How does student retention at the discipline level compare to the overall District **retention** rate?

	Retention %	
	S 2022	F 2022
ASTRON	80.9	81.7
ENVST	80.6	
ENVS	72.3	72.5
GEOG	81.4	78.1
GEOL	77.2	80.4
METRO	77.8	85.2

For the department: 79.5 Spring, 80.1 Fall

For the district: 79.2 Spring, 76.9 Fall

Overall, our department's retention is in line with the district average retention rate. Environmental Science is the only discipline that is slightly below the district rate in both spring and fall.

How does student success at the discipline level compare to the overall District **success** rate?

	Success %	
	S 2022	F 2022
ASTRON	76.9	75.6
ENVST	80.6	
ENVS	70.9	71.8
GEOG	77.6	70.9
GEOL	69.8	75.6
METRO	77.8	77.8

For the department: 75.6 Spring, 74.5 Fall

For the district: 76.2 Spring, 73.6 Fall

Overall, our department's student success is in line with the district average success rate. Environmental Science is the only discipline that is slightly below the district rate in both spring and fall.

How does the average student GPA at the discipline level (total units/grade points) compare to the overall District GPA? If there is a difference (either above or below), can you explain that?

	GPA	
	S 2022	F 2022
ASTRON	2.71	2.68
ENVST	3.00	
ENVS	2.69	2.79
GEOG	2.89	2.73
GEOL	2.49	2.65
METRO	2.75	2.70
PHYSC		

For the department: 2.71 Spring, 2.70 Fall

For the district: 2.92 Spring, 2.82 Fall

The GPA of our students has, by and large, been lower than the district average. It is our opinion that students taking ESS classes are underprepared for college-level science courses when compared to other disciplines within the district. We also maintain rigorous academic standards. Environmental Studies (which hosts only the environmental forum class) is the only discipline in our department whose GPA exceeded the district average in any semester.

#### Student Equity Data Analysis

- *What patterns to you see in retention, success, and GPAs for enrollments in your discipline? For example, it is common for retention rates to be higher in summer terms.*

Overall retention, success rates, and GPA in summer are indistinguishable from spring and fall. There is no pattern, just minor random variability from one session to the next. One interesting note is that the district as a whole tends to have lower retention, success, and GPA in fall than in spring. It is possible this is due to new students entering the college who are unprepared compared to spring students who have had time to adjust. We do not see this trend in our department - all three metrics are fairly consistent from fall to spring.

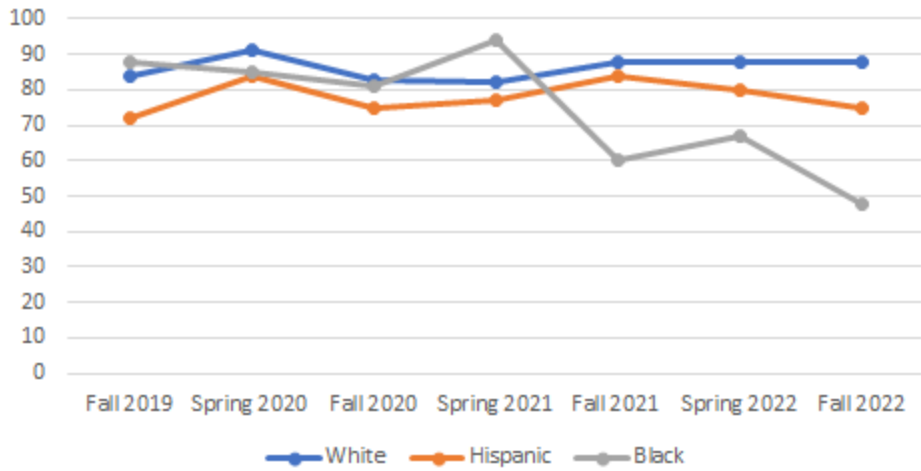
- *What patterns do you see in your student equity data? Do you see differing levels of achievement by ethnicity, gender, socioeconomic status, or disability status?*

Yes. Throughout the ESS disciplines, retention and success were substantially lower for non-white students in 2022. Hispanic students tended to have rates of success and retention 10-20% below their white counterparts, with substantial variation between disciplines. For all disciplines other than Astronomy, the individual number of students from other ethnicities is too small to provide statistically significant information. For Astronomy (which has larger overall enrollments and sample size), Asian students sometimes did better than white students and sometimes did worse. There didn't seem to be a consistent equity gap between Asian and White students. Multiple Ethnicity students tended to have rates of success and retention 5-15% below white students. Black students tended to have very poor rates of success and retention, 20-50% lower than rates for white students. For

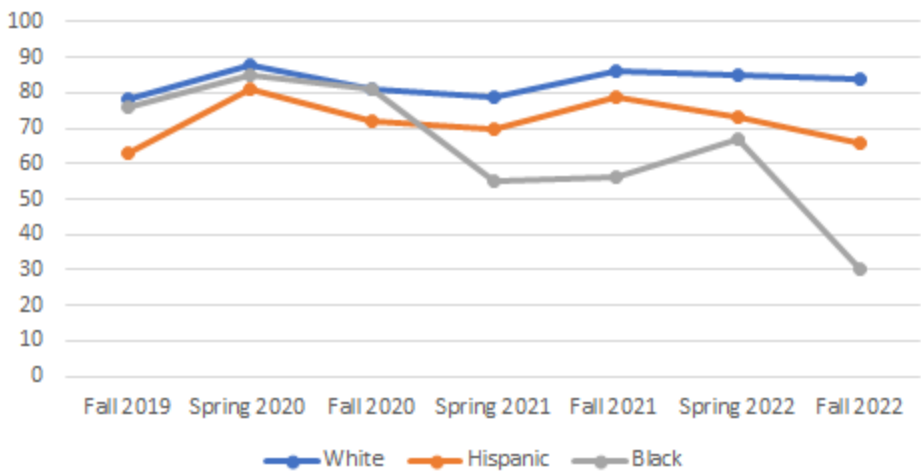
example, in Fall 2022, retention in astronomy was 88% for white students and 48% for black students.

For the next part of this analysis, we will focus disciplines and ethnicities that have a large enough sample size to be meaningful, and where equity gaps were identified. Digging into the astronomy data, prior to spring 2021, although black students had a lower average GPA than white students, the grades were typically high enough for them to pass the class. Retention and success rates were totally consistent with the rates for white students - there was no retention/success equity gap. Starting in spring 2021, the GPA dropped enough for black students that they began to fail classes in greater numbers, and retention also fell off sharply. Basically, before the pandemic black students were doing worse than their white counterparts, but still succeeding. After the switch to fully online learning, and the introduction of many black students who presumably had their high school experience interrupted by the pandemic, black students started to see their retention and success drop off sharply compared to white students, whose success rates seem to be largely unaffected by the pandemic. As seen in the charts below, the gap between hispanic and white students has remained fairly consistent, with some evidence that it began to increase (get a little worse) starting in spring 2022, and fell off sharply in some disciplines in fall 2022.

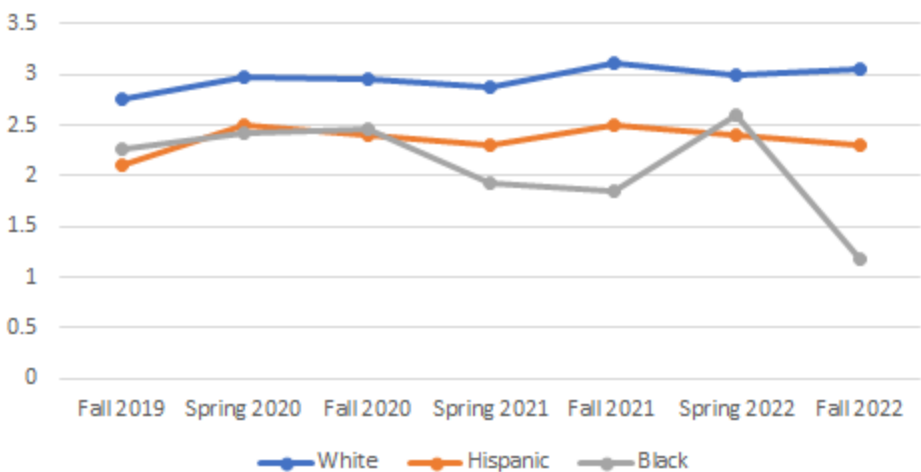
### Astronomy retention by ethnicity



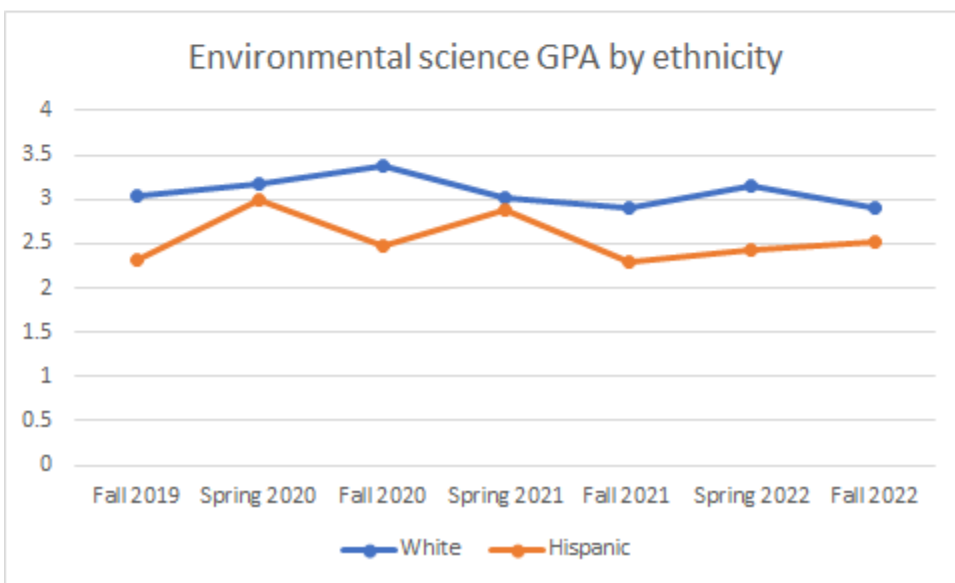
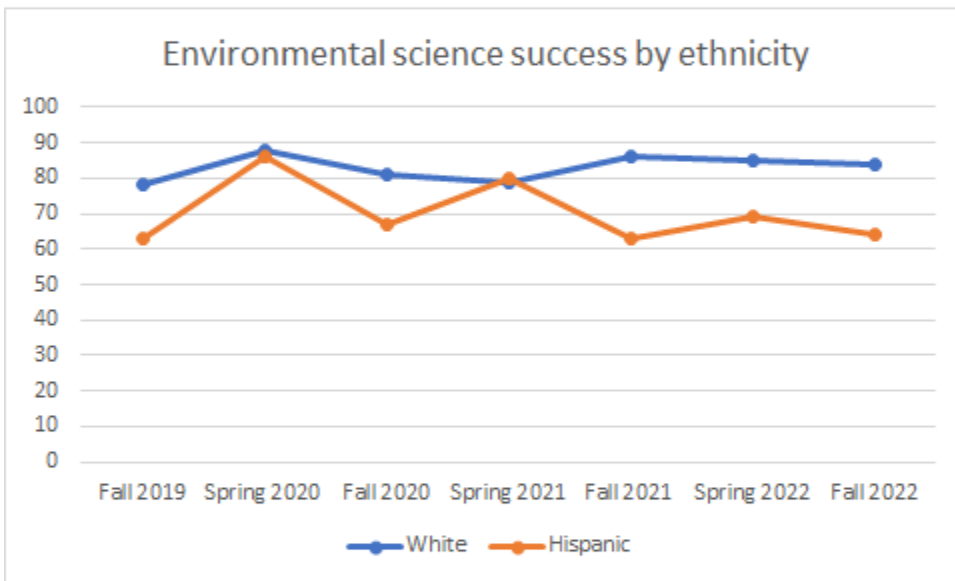
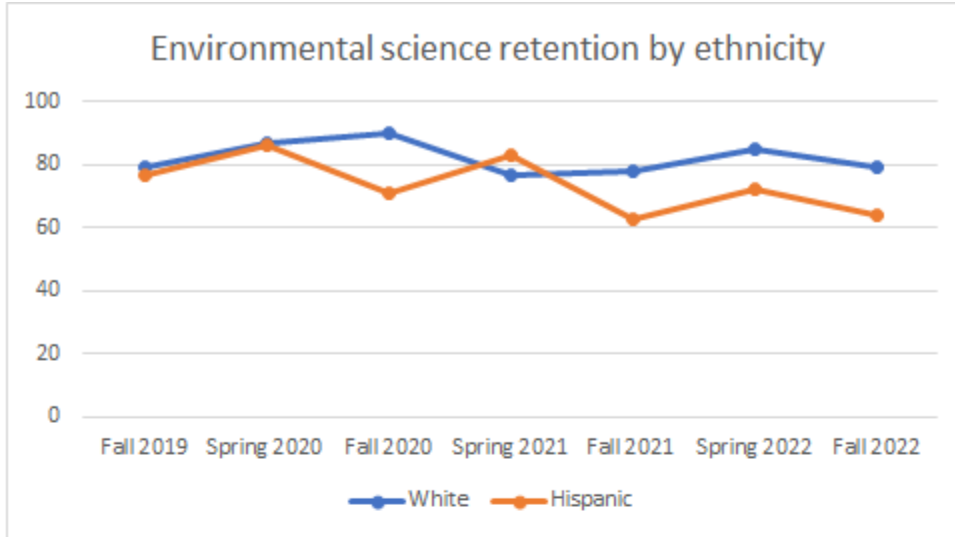
### Astronomy success by ethnicity



### Astronomy GPA by ethnicity

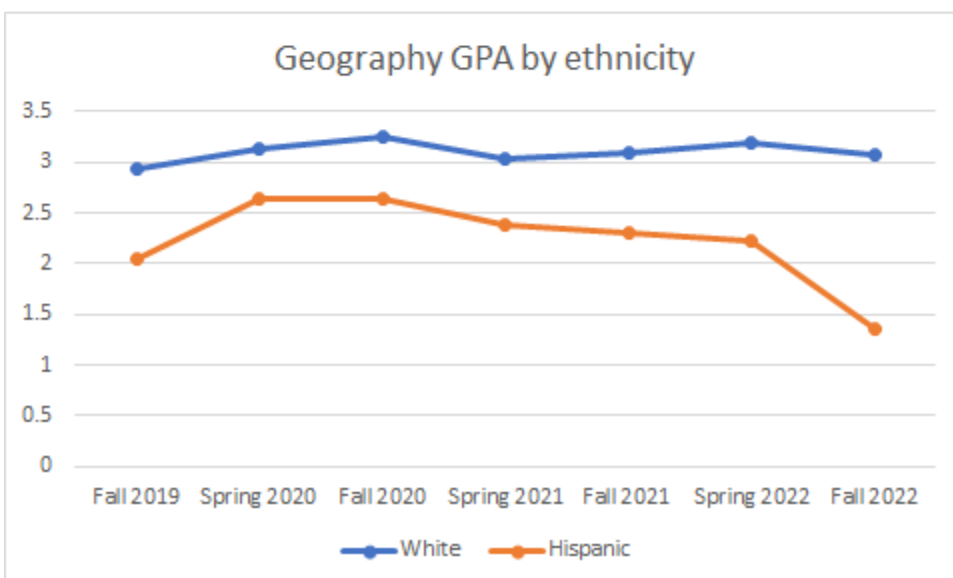
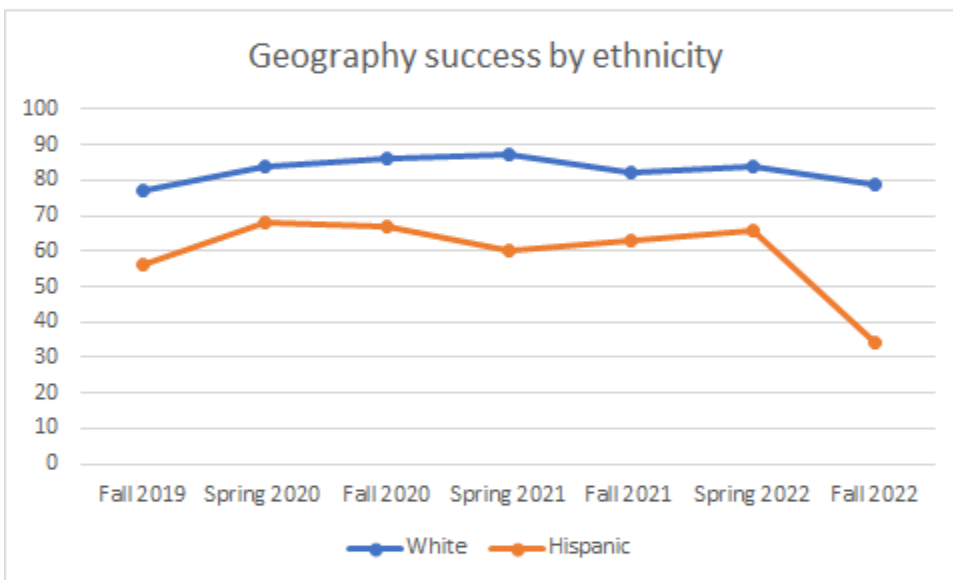
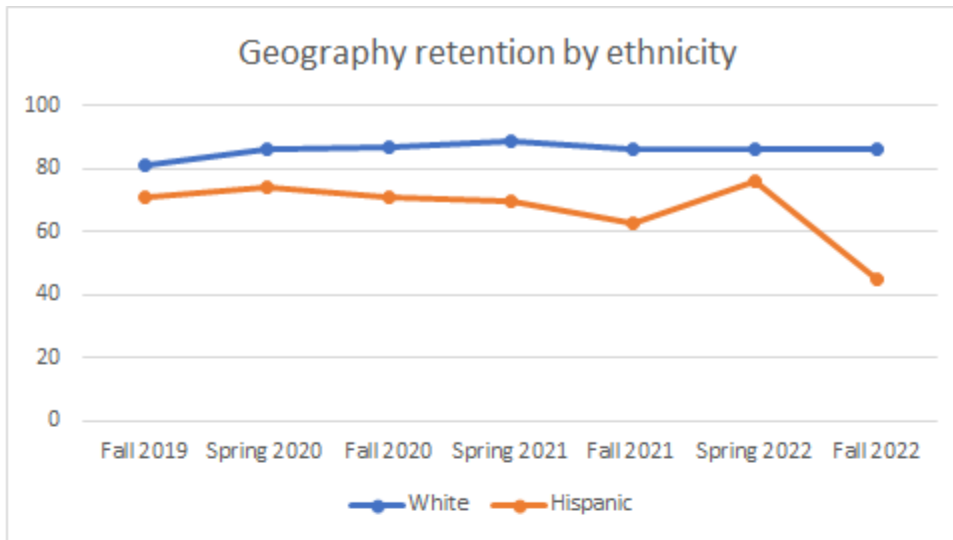


Equity gaps between white and hispanic students in Environmental Science and Geology have remained fairly consistent over time, and in-line with average district-wide equity gaps.





In geography, hispanic students have seen a sharp drop-off in their average retention, success, and GPA in fall 2022. The decline is not in-line with district and department trends, and the reason for it is unknown. We will keep an eye on this in future semesters to see if it is anomolous.



We do not see significant differences by gender.

Data for socioeconomic and disability status is unavailable.

- *Next, it is recommended that you compare your data with the District-wide data. Do the patterns you identified in your disciplinary data mirror what you see in the District-wide data?*

In this analysis, we averaged the data for Fall 2020 - Fall 2022 (not including summer) to find average equity gaps between hispanic/white students and black/white students. We chose this period of time because the district average gaps seemed to reach a new level in Fall 2020, and remained fairly consistent after that. The table below summarizes our equity gaps:

	<i>District Average</i>	Astron	Envs	Geol	Geog
Hispanic Retention	8.8	7.6	11.2	4.4	21.8
Hispanic Success	10.2	11.0	14.4	10.0	25.6
Hispanic GPA	0.5	0.6	0.5	0.5	1.0
Black Retention	11.2	15.8			
Black Success	13.2	25.2			
Black GPA	0.6	1.0			

Our equity gaps are better than the district averages in the following areas: Retention for hispanic students in astronomy and geology.

Our equity gaps are in line with the district averages in the following areas: Success for hispanic students in astronomy and geology. GPA for hispanic students in astronomy, environmental science, and geology.

Our equity gaps are somewhat worse than the district averages in the following areas: Retention and success for hispanic students in environmental science. Retention for black students in astronomy.

Our equity gaps are **much worse** than the district averages in the following areas: Retention, success, and GPA for hispanic students in geography. Success and GPA for black students in astronomy.

There is not enough data to meaningfully assess equity gaps by ethnicity for any groups/disciplines not listed.

### **Equity Data Summary**

Overall, our department has substantial equity gaps that are largely in line with district averages. The gaps are much worse than the district average in two areas: for hispanic students in geography and for black students in astronomy. These particular gaps have worsened substantially in recent semesters: there was a significant drop-off for black

astronomy students starting in spring 2021 and worsening since then, and a gradual decline for hispanic geography students starting in fall 2020 with a severe worsening in fall 2022.

- *What can your discipline faculty do to address the disparities you find in your data? Some ideas might include:*

The first step is to figure out why these gaps are occurring. We need to have meetings of the discipline faculty to examine the data, identify causes, and brainstorm solutions. We hope to have a comprehensive action plan next year.

## 5.7 Student Access

### Updated Spring 2023

Do students from diverse ethnic backgrounds enroll in the disciplines at rates equal to their participation rates in the District as a whole? If not, how could the program attract students that may be underrepresented in the program?

We are unable to answer this question as we cannot find the district totals with which to compare departmental data. The district totals document referenced in the instructions only has this data broken down by department. **There is no overall district total provided.**

### 2022-2023 Students Served by Ethnicity

	ASTRON	ENVS	ENVST	GEOG	GEOL	METRO	District Total
White	40.2	51.9	65.0	50.8	50.0	51.7	??
Asian	4.3	2.5	5.0	3.7	4.2	3.4	??
Black	2.2	2.1	0.0	1.3	1.6	1.7	??
Hispanic	39.9	29.1	20.0	31.2	31.0	25.9	??
Native American	0.4	0.7	0.0	0.3	0.3	0.0	??
Pacific Islander	0.2	0.7	0.0	0.0	0.0	0.0	??
Filipino	0.4	0.4	0.0	0.0	0.3	0.0	??
Other Non-White	6.1	8.8	7.5	5.8	6.1	5.2	??
Decline to State	6.4	3.9	2.5	6.9	6.5	12.1	??

Do male or female students constitute 75% or more in this discipline? If so, what strategies are being used or planned to increase enrollment of the non-traditional gender?

No – none of the ESS disciplines have male or female students accounting for more than 75%. The numbers vary significantly by discipline and by year.

Has the program/unit experienced changes to its student population or changes in the needs of students in the last four years?

Yes, of course. Covid started in 2020. The needs of our students to take classes in a variety of modalities have changed completely since then. We are constantly adjusting to change from one semester to the next.

What types of outreach or retention efforts are occurring or should be implemented to better serve underserved or under-represented populations in this program?

These populations have historically been under-represented in science disciplines in other academic settings as well as the professional realm. These discussions are occurring at the state and national level within professional organizations. SRJC outreach to local high schools could help to increase science enrollment, particularly in environmental studies and environmental science.

How does this program/unit serve students that are often underrepresented in college including various ethnic groups, lower socioeconomic groups, English language learners?

Multiple faculty have undergone training in reading apprenticeship to better serve students with poor academic English reading skills. Faculty have attended affective learning workshops and various Communities of Practice relating to racism, anti-racism, and inclusion as well. Multiple instructors use Open Educational Resources (OER) to better serve and provide access to economically disadvantaged students. Faculty are exploring hybrid and multi-modality offerings to provide greater access and flexibility that could benefit under-represented and marginalized groups who may face greater hurdles in getting to a physical classroom.

## **5.8 Curriculum Offered Within Reasonable Time Frame**

### **Updated Spring 2023**

Title 5 regulations require that all courses for certificates and majors be offered within a “reasonable time frame.” A reasonable time frame is often considered to be two years, but it could be longer if appropriate. For example, a reasonable time frame for an evening program designed for working adults might be three years.

Are all courses in certificates and majors offered on a regular or rotational basis so that students can complete their programs within a reasonable time frame?

Courses within majors are offered within a reasonable time frame. Some of our courses that are not heavily subscribed are only offered every 2-3 years. These include GEOL 11, METRO 10L, and PHYSC 21. Because we have not offered these courses recently, we are offering GEOL 11 and METRO 10L in Fall 2023. Our limitation for PHYSC 21 is staffing.

Are your course sequences (program maps) current on the majors/certificate website? If not, plan to update those.

The Environmental Sciences course sequence is updated as of Fall 2023 on the majors website.

If courses are offered in rotation, describe the rotation plan or copy and paste into the text area a schedule of course offering patterns. (Data Source: Program must provide.)

This does not apply to the ESS Department.

## **5.9a Curriculum Responsiveness**

### **Updated Spring 2023**

How does the program/unit curriculum respond to changing student, community, and employer needs?

We attempt to offer a variety of courses in multiple modalities (online, hybrid, multi-modality, F2F) that students can take to meet their GE requirements that include lecture and lab components. We also offer courses of varying length from 15 weeks to the full semester 17.5 weeks, and some 1 to 6 week summer classes.

Has your program/unit fully complied with the State requirement that every general education course that transfers to a CSU or UC campus must include objectives (content) related to gender, global perspectives, and American cultural diversity? If not, describe the plan to bring the curriculum into compliance.

During regular curriculum review, our courses have successfully gone through Cluster Tech Review and CRC without issue.

How does the curriculum support the needs of other programs, certificates, or majors?

Several of our courses are included as parts of other majors, or electives for certificates. Specifically many of our courses are included in the Environmental Studies major and the Natural Sciences major. Our primary focus is on helping students to complete their GE science requirements, including laboratory science.

Offer recommendations and describe plans for new directions in the curriculum.

We have been offering a new Global Climate Change course since Fall 2019. We are exploring offering Oceanography in the future, and have developed a course in Astrobiology that will be offered in Fall 2024.

## **5.9b Alignment with High Schools (Tech-Prep ONLY)**

**Reviewed Spring 2023**

Not applicable.

## **5.10 Alignment with Transfer Institutions (Transfer Majors ONLY)**

**Reviewed Spring 2023**

- Do transfer majors align with (75% overlap of units) the lower division required courses at common transfer destinations? If not, what is the plan to bring the major into alignment?
- Do transfer majors align with (50% overlap with) the lower division required courses at common transfer destinations? If not, what is the plan to bring the major into alignment?

We are working on the creation of Associate Degrees for Transfer (AA-T) for geography and environmental science. Once completed, there should be a 75% overlap of units.

## **5.11a Labor Market Demand (Occupational Programs ONLY)**

**Reviewed Spring 2023**

Not applicable.

## **5.11b Academic Standards**

**Updated Spring 2023**

Does the program regularly engage in dialogue about academic standards? If so, describe any conclusions or plans.

Within our department, there is dialogue among instructors regarding academic standards, grading, assignments, etc. We are fortunate that instructors agree on academic rigor, and course standards. We are concerned about challenges we are facing as more underprepared students enter our courses since our advisories have been removed. Our biggest concern is the increased use of AI to complete assignments, and what this indicates about the preparedness

of our students and how we assess our students. We plan to monitor the situation and adjust as necessary.

## 6.1 Progress and Accomplishments Since Last Program/Unit Review

Rank	Location	SP	M	Goal	Objective	Time Frame	Progress to Date
0000	ALL	02	01	Update ENVST major	Remove outdated courses (ENGL 10 and CI53) and add in new core course (ENVS 8). Streamline electives. Create and disseminate survey and address comments from the Program Review Committee.	2022-2023	Completed Spring 2023.
0001	ALL	02	01	Geography TMC major	Two options: Work with EA&T to update GIS course to align with C-ID or remove GIS from the major and resubmit Geography TMC based on comments from the State.	2022-2023	None.
0002	ALL	02	01	ENVS TMC major	Continue to work with C-ID to move forward with approval of core ENVS classes and major. Continue to serve on ENVS TMC major review committee at the state level. Once issues are resolved with C-ID, follow up with Articulation to resubmit the major.	2022-2024	None.
0003	ALL	02	06	Finalize GEOG 4 Lab course.	Follow up with Curriculum for status of course (5/22). Order equipment / supplies for lab.	2022-2023	Completed Fall 2022.
0004	ALL	02	01	Explore additional ESS course offerings to meet student needs (astrobiology, oceanography)	Develop format, SLO's and COR for new courses.	2022-2024	ASTRON 42 (Life in the Universe) submitted Spring 2023; awaiting approval from Chancellor's office.



## 6.2b PRPP Editor Feedback - Optional

### Updated Spring 2023

We find this process extremely time consuming and redundant, as many sections ask for repeated information. In instances such as this, why can't the section be self-populated by what's been added to the duplicate/like section?

Additionally, the data the district provides us with is improved from previous years, though is by no means complete. There are sections of this document that we have not completed due to a lack of data.

Importantly, we feel that the data supplied from the district should **auto-populate** in the relevant section of this PRPP, so that our job should be *data analysis and program review* rather than wasting our valuable time crunching numbers that should be generated and already present in our PRPP.

## 6.3a Annual Unit Plan

Rank	Location	SP	M	Goal	Objective	Time Frame	Resources Required
0001	Santa Rosa	02	01	Create supplemental learning facility in Lark 2046	Install tools including modern seismograph, virtual reality sand table with projection screen, rock and mineral kits.	2023-2024	Staff time. Media Services help and equipment. Outside experts (SSU technical help). Seismograph. Furniture.
0002	Santa Rosa	02	01	Get petrographic microscopes operational	Assemble and calibrate petrographic microscopes, develop laboratory activity related to microscope use.	2023-2024	Staff time.
0003	Santa Rosa	02	01	Get new telescopes / Astronomy equipment operational	Redesign course assignments to take advantage of newer technology. Determine storage and transport solutions for new wedges.	2023-2024	Staff time. Adequate storage space and transport solutions.
0004	Santa Rosa	02	01	Make planetarium operational	Current academic use, current and future community outreach.	2023-2033	Buy-in and support from college leadership. Funds \$\$\$\$. Staff support.
0005	ALL	02	01	Geography TMC major	Two options: Work with EA&T to update GIS course to align with C-ID or remove GIS from the major and resubmit Geography TMC based on comments from the State.	2023-2024	Staff time.
0006	ALL	02	01	ENVS TMC major	Continue to work with C-ID to move forward with approval of core ENVS classes and major. Continue to serve on ENVS TMC major review committee at the state level. Once issues are resolved with C-ID, follow up with Articulation to resubmit the major.	2023-2024	Staff time.
0007	ALL	02	01	Explore additional ESS course offerings to meet student needs (oceanography and others)	Develop format, SLO's and COR for new courses.	2023-2026	Staff time. Lab equipment supplies.

