

#19

COMPLETE

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Page 1: Full-Time Faculty Position Form

Q1

Please enter the following:

Department	Earth Science
Position Title	Native & Environmental Science Professor

Q2

No, the position has not yet been funded

If this position has already been funded, do you want to continue with the current request?

Page 2

Q3

1. Describe why this position is essential to your program and/or service area. How has the lack of this position impacted your program and/or service area? What will be the impact to the program and/or service area if this position is not filled? (Rubric Criterion 1, 3)(300 words or less)

With this position, we would be able to develop the final required IGETC physical science course needed to be able to offer a bachelor's degree through the KCC. To be clear, developing a fully integrated, non-exploitive Modern (western) and Traditional (indigenous) science course is a delicate process that requires full investment including trust and long relationships between discipline-expert faculty from both sides as well as the Kumeyaay community. This is not something that can be pawned off on an adjunct even if we had the money to pay them. It is, however, something Cuyamaca specifically can do thanks to our affiliation with the Kumeyaay Studies program and the Kumeyaay Community College (KCC).

Additionally, this would align us with recent education mandates such as the California Indian Education Act (AB 1703)*, a bill signed into law in 2022 that encourages school districts to collaborate with local Native American tribes to develop history lessons and strategies for closing the achievement gap for Indigenous students.

This program provides a unique opportunity to evolve from a general education science factory to a fully realized program incorporating indigenous science and culture with a socially and environmentally conscious curriculum. It could engage and propel future environmental leaders from our community of students previously poorly represented in STEM.

Alternatively, we currently have only a handful of disconnected courses, and we are missing some modern skills like GIS (Geographical Information Systems Mapping) which could support other programs like Biology, Business, Surveying, and Engineering, as well as providing good certificate programs for students looking to boost their tech marketability on their resumes or change careers. Although we have wonderful part-time instructors, we do not currently have the resources to support much more than change within the classroom. Without a full-time instructor, building a fundamentally different program is out of the question. Work of that nature takes more than money; it requires investment in an institution.

*Ramos, James C. "Governor Signs Ramos California Indian Education Act Aimed at Improving Classroom Instruction of Native American History and Culture." Assemblymember James C. Ramos, California State Assembly, 2022

Q4

2. What are the racial and gender demographics of the faculty within your program? What steps will your program take to ensure this position will promote faculty diversity to reflect the students the college serves, for example: (Rubric Criterion 1)- Participating in professional development related to equity and diversity in hiring- Participating in professional development related to equal employment opportunity (EEO)- Completing EEO Representative Training- Employing strategies to recruit diverse applicants(300 words or less)

The current racial and gender demographics of our program's faculty (mostly women, 67% white 33% Hispanic) do not reflect the diversity of our student body, while the students enrolled in the program have the best match with the college demographics in STEM.

Nationally, the Earth Sciences generally have better diversity than other fields of STEM in terms of race and gender. 10% of GIS specialists in the industry in the US are African American (<https://www.zipppia.com/gis-analyst-jobs/demographics/>) for instance.

To address this and ensure that the new position promotes faculty diversity in line with the students we serve, our program is committed to the following strategies:

Professional Development in Equity and Diversity: The department overseeing this program is dedicated to both diversity and equity. The current program faculty have ALL participated in EMTLI and our department's EMTLI-based community of practice (SEED) and we would strongly encourage/require any new faculty to do the same. The chairs of this department have participated in EMTLI (one as a participant and the other as an instructor), and one is also a former SSEC coordinator/co-chair.

Equal Employment Opportunity (EEO) Training: The co-chairs of the department (who do the hiring) are both EEO trained, with experience serving as the EEO representative on multiple hiring committees while that program was active.

Targeted Recruitment Strategies:

1. **Specialized Advertising:** The position will be advertised on platforms that cater to diverse demographics, such as the American Indian Science and Engineering Society (AISES), the Society of Latinxs/Hispanics in Earth and Space Science (SOLESS), and the National Association of Black Geoscientists (NABG).
 2. **Professional Networks and Social Media:** We will leverage professional networks and social media platforms to reach potential candidates from underrepresented groups.
 3. **Community Engagement:** We have been actively working with the local Kumeyaay program to engage and develop relationships with tribally affiliated scientists.
 4. **Emphasizing Diversity in Job Descriptions:** Job descriptions will be crafted to explicitly encourage applicants from diverse backgrounds, emphasizing the program's commitment to inclusivity and representation in addition to our college's Mission, Vision, and Values.
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Q5

3. How will this position improve student learning and achievement, and close equity gaps in access and outcomes in your program? What steps are you taking to close equity gaps in access and outcome, for example: (Rubric Criterion 2)- modify curriculum to reflect the college's diverse student population- close equity gaps- ensuring equitable access to courses that have pre-requisites- removing barriers for students, especially those from historically marginalized groups- adopt/create no cost/low cost textbooks and course materials(300 words or less)

Curriculum Modification for Diverse Student Population:

The primary aim of our program's redesign is to develop an Earth Science curriculum that resonates with our diverse student community. This involves focusing on local issues, environmental sustainability, and social challenges. For example:

1. In Geography, we plan to explore the long-term economic outcomes of redlining, zoning, and the relocation of indigenous and minority groups.
2. We'll use GIS in Geography to collect data on pollution sources and analyze their disproportionate impact on certain communities.
3. Oceanography and Geology courses will incorporate environmental sustainability practices of indigenous peoples, both locally and globally.

Closing Equity Gaps:

Further details on closing equity gaps are discussed in the context of question 5.

Equitable Access to Courses with Pre-requisites:

Currently, our courses do not have prerequisites, ensuring that all students, regardless of their academic background, have equal access to our programs.

Removing Barriers for Historically Marginalized Groups:

We aim to make Earth Sciences particularly relevant to students from historically marginalized groups. This will be achieved by focusing our curriculum on pertinent environmental and social issues as well as a synthesis of Modern and Traditional science practices tied to our Kumeyaay collaboration.

Adoption of No-Cost/Low-Cost Textbooks and Materials:

Given the unique nature of our redesigned courses, we anticipate the need to create many of our materials. During the hiring process, we will emphasize the importance of developing and utilizing no-cost or low-cost educational resources to ensure affordability and accessibility for all students.

Q6

4. Has there been or is there evidence to demonstrate that there will be an increase in student demand for your programs and/or services? How are students being adversely impacted without this position? Please discuss supporting data from recent semesters. For example, enrollment trends, waitlist pressures, or wait time for appointments and support services, students served, etc. as they apply to this position. (Rubric Criterion 2)(300 words or less)

Careers data

Environmental jobs related to our program are a significant part of the San Diego economy and are slated to grow over the next five years (see attachment). Additionally, there are 83 job listings in San Diego County alone for GIS positions with a median salary of \$67k/year (https://www.glassdoor.com/Salaries/san-diego-gisanalyst-salary-SRCH_IL.0,9_IM758_KO10,21.htm). With a full-time instructor, we could easily coordinate degree, transfer, and certificate programs for students in this area.

Dual-enrollment

Earth Science courses are excellent candidates for dual enrollment and we have offered many dual enrollment sections in the past. The planned redesign of these courses including a native and environmental lens will make these classes more alluring to high schools coming under new mandates regarding climate science and Native American cultural requirements of AB 1703.

California has been proactive in integrating climate change education into its school curriculums. Assembly Bill 1939, introduced in 2022, mandates the inclusion of climate change causes and effects in the state's educational program, aiming for implementation by the 2023-2024 school year. Additionally, by the 2027-2028 school year, high school science courses required for graduation must cover climate change topics.*

In 2021, Governor Gavin Newsom signed legislation providing \$6 million for developing free educational resources on climate change and environmental justice for K–12 students. This funding, part of AB/SB 130, supports creating a curriculum that enhances students' understanding of and engagement with climate change and environmental justice issues.**

The California Department of Education also emphasizes environmental education and literacy, including climate change. It supports various initiatives and programs to increase environmental awareness and preparedness among students to address future environmental challenges.***

Enrollment data

Even without a full-time instructor, we have grown enrollment over the past five years (see enrollment data for OCEA, GEOL), however, a larger program would likely not be sustainable without a full-time person. We would like to bring many of our online classes back to in-person, but we need someone with the knowledge and time to redevelop the courses and figure out where the right equipment is since we went many months without a lab technician OR full-time instructor at the same time and so even though we likely have most of the equipment we need, no one knows exactly what or where everything is anymore. Having overhauled labs and lectures in Physics and Engineering we are aware of the huge commitment this takes from multiple full-time instructors. We are currently heavily reliant on part-time instructor's curriculum knowledge that spans 3-4 disciplines. This is difficult to coordinate especially since there is not a simple way to pay them for this work. A full-time person would be paid to coordinate and work on the curriculum.

*National Center for Science Education. "Legislation to Support Climate Change Education in California." NCSE, 11 Feb. 2022, ncse.ngo/legislation-support-climate-change-education-california.

** Ten Strands. "CA Approves \$6M to Climate Change and Environmental Justice Curriculum." Ten Strands, 16 July 2021, tenstrands.org/ca-approves-6m-to-climate-change-and-environmental-justice-curriculum.

*** California Department of Education. "Environmental Education and Environmental Literacy." CDE, www.cde.ca.gov/pd/ca/sc/environmentaleducation.asp.

Q7

5. Which program review goal(s) is this request supporting? Please state how the position will help advance the specific goal(s). Please explain how this position would support historically marginalized groups. (Rubric Criterion 3)

This request for a full-time tenure track faculty member at Cuyamaca College supports several key program review goals, with a focus on integrating Modern and Traditional Sciences (MaT Science) - where 'modern' refers to Western science and 'traditional' to native science:

Goal 1: Design More Equitable Courses:

The faculty member will play a crucial role in creating courses that blend Modern and Traditional (MaT) science collaboratively with the Kumeyaay community as well as other native communities. This is essential, overdue, and extremely delicate work requiring long-term relationships and trust built over time due to an extremely contentious history. Although this work has clear social justice relevance, it also enriches the curriculum by providing diverse perspectives, complementary methodology, a deeper understanding of science and history, and stronger student engagement. For example, incorporating Indigenous perspectives on the Amazon rainforest has been crucial in understanding and combating deforestation, while Polynesian oral histories provide valuable insights into the Antarctic environment, enhancing conservation efforts. Furthermore, research has shown that Indigenous lands are vital for preserving biodiversity, as they harbor a significant proportion of the world's threatened and endangered species. These examples underscore the importance of integrating diverse knowledge systems in educational curricula, particularly in environmental studies and conservation.

"Better Together: Native Knowledge and Western Science." Natural Habitat Adventures, www.nathab.com. Accessed 19 Nov 2024.

"Weaving Indigenous knowledge into the scientific method." Nature, www.nature.com. Accessed 19 Nov 2024.

Barnhardt, Ray, and Angayuqaq Oscar Kawagley. "Indigenous Knowledge Systems and Alaska Native Ways of Knowing." *Anthropology & Education Quarterly*, vol. 36, no. 1, 2005, pp. 8–23. JSTOR, www.jstor.org/stable/3651212.

Goal 2: Update Curriculum:

Currently, our Curriculum is limited to general education courses and has not kept pace with change in the disciplines it represents. A full-time faculty member who is an expert in one or more of the disciplines we offer (Geology, Geography, and Oceanography) would be needed to effectively correct this while developing a program more geared to equity and student interest in climate change, native history and culture, and something different from the regional offerings.

Program Redesign in Collaboration with Kumeyaay Studies:

In collaboration with the Kumeyaay Studies program, the faculty member will be instrumental in incorporating traditional (native) scientific perspectives and knowledge into the curriculum. This initiative is crucial for enriching the program with cultural depth and recognizing the importance of indigenous knowledge in understanding environmental science, thus supporting students from historically marginalized communities.

Ensia. "How Traditional Ecological Knowledge Can Help Science Education." Ensia, ensia.com/articles/environmental-education-traditional-ecological-knowledge-native-science/. Accessed 19 Nov 2024.

Yes Magazine. "Indigenous Educators Rewrite the Curriculum to Respect Native Narratives." Yes Magazine, yesmagazine.org/environment/2020/09/18/environmental-science-indigenous-educators. Accessed 19 Nov 2024.

Vox. "How Indigenous-Led Conservation Is Transforming the Way We Manage Land and Water." Vox, [vox.com/down-to-earth/22849782/nature-conservation-indigenous-science-jessica-hernandez](https://www.vox.com/down-to-earth/22849782/nature-conservation-indigenous-science-jessica-hernandez). Accessed 19 Nov 2024.

Vox. "Indigenous People Are the World's Biggest Conservationists, but They Rarely Get Credit for It." Vox, [vox.com/22518592/indigenous-people-protect-nature-icca](https://www.vox.com/22518592/indigenous-people-protect-nature-icca). Accessed 19 Nov 2024.

Yale Environment 360. "Native Knowledge: What Ecologists Are Learning from Indigenous People." Yale Environment 360, e360.yale.edu/features/native-knowledge-what-ecologists-are-learning-from-indigenous-people. Accessed 19 Nov 2024.

KCET. "Five Reasons Why Native Knowledge Is Essential to Understand the Environment." KCET, kcet.org/shows/tending-nature/five-reasons-why-native-knowledge-is-essential-to-understand-the-environment. Accessed 19 Nov 2024.

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Environmental Evidence. "A Systematic Review of How Conservation and the Biodiversity Crisis Are Presented in Mass Media." Environmental Evidence, environmentalevidencejournal.biomedcentral.com/articles/10.1186/s13750-019-0181-3. Accessed 19 Nov 2024.

GIS Courses & Certificates:

Currently, the program relies on only one adjunct faculty member semi-proficient in Geographic Information Science (GIS). The new faculty member will address this gap, enhancing GIS education and responding to the needs of students in geography and related fields. This will not only counter the decline in traditional geography program enrollments but also open a spectrum of career opportunities in various fields.

Esri. "Why GIS in Education Matters." Esri, www.esri.com/en-us/industries/education/schools/why-gis-in-education-matters. Accessed 19 Nov 2024.

Esri. "Top 10 Educational Benefits for Students Who Use GIS." Esri, www.esri.com/en-us/industries/education/schools/10-educational-benefits-gis. Accessed 19 Nov 2024.

Esri. "Teaching (and Research Using) GIS—Shifting to Modern GIS." Esri, www.esri.com/en-us/industries/education/schools/teaching-and-research-using-gis. Accessed 19 Nov 2024.

Q8

6. Is this a new position, replacement for a retirement/upcoming retirement or replacement for internal promotion (faculty to administrator), or replacement for other circumstances? Please explain. (Rubric Criterion 3)(100 words or less)

This is a replacement for a resignation when Caitlyn Tems left during the tenure process in 2019.

Q9

7. Which strategic priority/priorities is this request supporting? Please state how the position will help advance the specific priority/priorities and the College’s mission, vision and values. Note: the more goals addressed the stronger the request (Rubric Criterion 4) Increase equitable access (enrollment) Eliminate equity gaps in course success (passing grade in class) Increase persistence eliminate equity gaps (re-enrolling the subsequent semester or year) Increase completion and eliminate equity gaps (graduating with a degree/certificate, or transferring) Increase hiring and retention of diverse employees to reflect the students and communities we serve (300 words or less)

Increase Equitable Access (Enrollment):

A full-time instructor with a focus on environmental issues through an indigenous lens will enhance community outreach. This will attract a diverse student population interested in environmental issues and indigenous perspectives.

Developing degrees, certificates, and general education science courses that are engaging and relevant to our student population will increase enrollment. The courses will be designed using effective teaching methodologies already implemented in the Engineering and Physical Science department.

Eliminate Equity Gaps in Course Success (Passing Grade in Class):

In addition to the steps mentioned for equitable access, integrated support services like embedded tutoring will be crucial. This will assist students in overcoming academic challenges and achieving success in their courses.

Increase Persistence and Eliminate Equity Gaps (Re-enrolling Subsequent Semester or Year) and increase Completion (Graduating with Degree/Certificate, or Transferring):

The strategies for increasing equitable access and eliminating equity gaps in course success will also contribute to higher rates of persistence and completion. Students will be more likely to re-enroll and complete their degrees or transfer due to the relevance and support provided.

Additional wrap-around support services will be crucial, including specialized counseling, peer mentoring, and career services like internships and work-based learning opportunities. These services will provide students with the necessary support and guidance, leading to higher rates of persistence and completion.

Increase hiring and retention of diverse employees to reflect the students and communities we serve

See question 2 for a comprehensive hiring plan.

Q10

8. Please confirm that you have discussed this faculty position request with the Division Dean and that you understand that Division Deans will be providing feedback to help inform the prioritization process. Note: The Division Dean will be providing feedback to help inform the prioritization process

Yes, I have discussed this position request with the Chair of the Department

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Yes, I have discussed this position request with the Division Dean
Note: The Division Dean will be providing feedback to help inform the prioritization process

Q11

If you would like to attach data to support your request in light of the rubric criteria, please upload a PDF, Word, or image file using the button below.

Earth%20Science%20Attachment.pdf (429.3KB)