

• AUTHORIZATION TO OFFER TOPICS COURSES FOR ACADEMIC CREDIT  
THROUGH EXTENDED STUDIES •

(Note: Extended Studies sections of topic classes for which the appropriate form E-T is not on file in the Office of Academic Programs will be removed from BANNER as periodic audits of course offerings are performed.)

**Note: Any proposed topic can only be offered two times before being converted to a non-topics course. Academic Programs will assign the appropriate suffix and edit the topic description provided.**

1. College of: Education 2. Center/Program/Department: Education

3. Instructor Dr. Kathy Hayden

(If more than one instructor will be teaching the course, list full name of the "instructor of record.")

4. Topic Abbreviation and Number: EDST 633 EX 5. Grading Method Standard

6. Term Spring 7. Year 2009 8. Variable Units\* \_\_\_\_\_

9. Has this topic been offered previously?  Yes  No If yes, indicate term(s) \_\_\_\_\_ Year \_\_\_\_\_

10. Topic Title: Integrating Technology in K-12 Science

11. **Topic Description:** Note: This part can be skipped if answer to part 9 is "yes." (NOTE: Please provide detailed information about the topic. Please type. You may also attach the topic description on a separate sheet if you do not have enough space.)

**This course prepares educators for integrating technology in science learning for K-12 teachers. Students (K-12 teachers) will use technology in their classrooms such as National Science Foundation resources and interactive flash-based learning objects that target academic content standards in science as well as technology standards for students and teachers from the International Society for Technology in Education. The use of online collaborative environments to support students in connecting with others outside the classrooms, such as experts and peers, and electronic communication media such as videoconferencing to engage students in activities that deepen their understanding of content topics and big ideas in science and technology.**

12. Does this topic have prerequisites? Teaching Credential and classroom experience required.

13. Does this topic have co-requisites? no

14. Does the topic require consent for enrollment?  Yes  No

Faculty  Credential Analyst  Dean  Program/Center/Department - Director/Chair

15. Is topic crosslisted:  Yes  No If yes, indicate which course \_\_\_\_\_ and obtain signature in #18.

16. What resources are needed to offer this topic (including technology)?

Science Text from K-12 science adoption, use of online learning management tools such as Moodle, access to Internet and up to date computers for use in classroom

17. Justification for offering this topic.

CYBERTEAM Grant

18. Does this topic impact any other disciplines? Note: This number can be skipped if answer to part 9 is "yes."

\_\_\_ Yes \_\_\_ X No If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

<u>CS (see email)</u>	<u>11/18/08</u>	<u>✓ sup.</u>	
<u>BIOL " "</u>	<u>11/18/08</u>	<u>✓</u>	Support ___ Oppose ___
Discipline	Signature	Date	

Discipline	Signature	Date	Support ___ Oppose ___
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19. Location (if topic not offered at main campus) North County Regional Education Center

20. Is this course being offered on-line? X Yes \_\_\_ No (partially on-line with face-to-face sessions as well)

21. Is this a contract topic? \_\_\_ Yes X No

22. Enrollment Limit 30

23. Requested Bldg/Room N/A  
Please call Extended Studies first to reserve the room.

Please note: A separate Form E-T must be submitted for each section offered.

SIGNATURES

<u>[Signature]</u>	<u>11/7/08</u>
1. Program/Center/Department Director/Chair	Date
<u>[Signature]</u>	<u>11/5/08</u>
2. College Dean (or Designee)	Date

The academic credentials of the instructor listed above are known to the Program/Center/Department (either regular faculty, or adjunct faculty with a curriculum vitae on file in the Program/Center/Department Office). The instructor is qualified to deliver the topic as described in part 9 (or on a previous Form T or Form E-T in the case of a topic that has already been offered).

<u>[Signature]</u>	<u>10/24/08</u>
3. Dean of Extended Studies (or Designee)	Date

Completed form received in the Office of Extended Studies

<u>[Signature]</u>	<u>12/1/08</u>
4. Associate Vice President for Academic Affairs – Academic Programs	Date

**CALIFORNIA STATE UNIVERSITY, SAN MARCOS  
COLLEGE OF EDUCATION**

EDST 633 Topics = CRN:  
**Integrating Technology in K-12 Science Fall 2008**  
Partially Online Course (includes some face to face meetings)

**Professor:** Dr. Katherine Hayden  
**Phone:** cell 760 750 8545  
**E-Mail:** khayden@csusm.edu  
**Office:** UH 218  
**Office Hours:** By appointment  
**Computer:** Students must have access to up-to-date computer and Internet.  
**Semester:** Fall 2008-Spring 2009

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**College of Education Mission Statement**

The mission of the College of Education Community is to collaboratively transform public education by preparing thoughtful educators advancing professional practices. We are committed to diversity, educational equity, and social justice, exemplified through reflective teaching, life-long learning, innovative research and on-going service. Our practices demonstrate a commitment to student-centered education, diversity, collaboration, professionalism, and shared governance. (Adopted by COE Governance Community, October, 1997).

**COURSE DESCRIPTION**

**Description:** This course prepares educators for integrating technology in science learning for K-12 students. Students (K-12 teachers) will use technology in their classrooms such as National Science Foundation resources and interactive flash-based learning objects that target academic content standards in science as well as technology standards for students and teachers from the International Society for Technology in Education. The use of online collaborative environments to support students in connecting with others outside the classrooms such as experts and peers, and electronic communication media such as videoconferencing to engage students in activities that deepen their understanding of content topics and big ideas in science and technology.

Contact Extended Studies for more information: Allyson Randall at Phone: 760-750-8713  
Fax: 760-750-3138, Email: arandall@csusm.edu

**Pre-Requisite:** Teaching Credential and classroom experience required.

**Graduate Credit:** this is a graduate level course, and successful completion can be applied toward elective requirements for some Masters Programs including the Masters in Education General option through the College of Education at Cal State San Marcos. Note that students must receive an A or B in order to use the course as one of their electives.

### **Course Objectives: Learner Outcomes**

By the end of this class, students will

1. Implementation of CI tools and skills by science teachers in their classroom.
2. Enhance teacher and student content knowledge in standards-based science through the use of virtual laboratories.
3. Engage the scientific research community, university faculty, university computer science (CS) students, and education partners with resources to demonstrate and support utilization of CI tools in science classrooms
4. Develop classroom lessons that use Internet based interactive tools to support student learning in science.
5. Use Web based lessons supported through an online environment such as Moodle or WebCT.
6. Collaborate with other science teachers to share experiences involving technology and science.
7. Assess students learning as a result of using technology and connecting with outside experts such as scientists.
8. Participate in a videoconference on a science topic.
9. Participate in Lesson Study Professional Development with other teachers who teach science.

### **Required Course Materials and Texts**

Science Text from K-12 science adoption.

Use of online Learning Management Tools such as Moodle

Access to the Internet and up to date computers for use in classroom.

### **College of Education Attendance Policy**

Due to the dynamic and interactive nature of courses in the College of Education, all students are expected to attend all classes and participate actively. At a minimum, students must attend more than 80% of class time, or s/he may not receive a passing grade for the course at the discretion of the instructor. Individual instructors may adopt more stringent attendance requirements. Should the student have extenuating circumstances, s/he should contact the instructor as soon as possible. In this course, the instructor has adopted this policy: you must be active in online coursework including email, discussions and activities at least twice weekly, or you cannot receive a grade of A or A-; if you are inactive for one week or more, you cannot receive a grade higher than B-. If you have extenuating circumstances, you should contact the instructor as soon as possible.

### **Students with Disabilities Requiring Reasonable Accommodations**

Students with disabilities who require reasonable accommodations must be approved for services by providing appropriate and recent documentation to the Office of Disable Student Services (DSS). This office is located in Craven Hall 5205, and can be contacted by phone at (760) 750-4905, or TTY (760) 750-4909. Students authorized by DSS to receive reasonable accommodations should meet with their instructor during office hours or, in order to ensure confidentiality, in a more private setting.

### **CSUSM Academic Honesty Policy**

"Students will be expected to adhere to standards of academic honesty and integrity, as outlined in the Student Academic Honesty Policy. All written work and oral presentation assignments

must be original work. All ideas/materials that are borrowed from other sources must have appropriate references to the original sources. Any quoted material should give credit to the source and be punctuated with quotation marks.

Students are responsible for honest completion of their work including examinations. There will be no tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to the instructor's attention. The instructor reserves the right to discipline any student for academic dishonesty in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole."

Incidents of Academic Dishonesty will be reported to the Dean of Students. Sanctions at the University level may include suspension or expulsion from the University.

**Plagiarism:**

As an educator, it is expected that each student will do his/her own work, and contribute equally to group projects and processes. Plagiarism or cheating is unacceptable under any circumstances. If you are in doubt about whether your work is paraphrased or plagiarized see the Plagiarism Prevention for Students website <http://library.csusm.edu/plagiarism/index.html>. If there are questions about academic honesty, please consult the University catalog.

**Participation:** It is expected that all students will have an active presence in the online community. You will need to use an up-to-date computer and operating system to play sound files and movie clips. It is your responsibility to check these capabilities out ahead of time and have a plan to identify a facility or location where you have access to allow these technical capabilities during the course (CSUSM provides access on campus computers). Note that all assignment documents MUST be able to be opened in Microsoft Office (Word in .doc format or Excel in .xls format).

**Grading Standards**

In order to successfully complete this course, assignments must be completed with at least an acceptable level noted on assignment rubrics. In addition to the assignments described below, performance assessment will be on student's ability to perform tasks using a variety of software.

**All University Writing Requirement**

California State University San Marcos has adopted an all-university writing requirement. In each course, students are required to **write at least 2500 words** in essays, exercises, papers and examinations. The portfolio is a large part of this writing assessment.

**Grading Procedures**

Grading is calculated based the following percentages:

94 - 97 = A	90 - 93 = A-	87 - 89 = B+
84 - 86 = B	80 - 83 = B-	77 - 79 = C+
74 - 76 = C	70 - 73 = C-	69 - 60 = D

## Virginia Mann

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**From:** Rocio Guillen-Castrillo  
**nt:** Tuesday, November 18, 2008 8:48 AM  
**To:** Virginia Mann  
**Cc:** David Barsky  
**Subject:** Re: FW: Extended Learning Topic - "Integrating Technology in K-12 Science"

Virginia,

Thank you, I was looking for it on the E-T form.

It is fine with the CS department to offer this course to educators

Rocio Guillen

>  
> Rocio,  
>  
> The phrase quoted below is on page 2 of the syllabus. It is #3 in the  
> Course Objectives.  
>  
> Virginia

> From: Virginia Mann  
> Sent: Monday, November 17, 2008 3:00 PM  
> To: Rocio Guillen-Castrillo  
> Cc: Youwen Ouyang  
> Subject: Extended Learning Topic - "Integrating Technology in K-12  
> Science"

>  
> Hello,

>  
> Extended Learning has proposed the attached topic - taught by Dr.  
> Katherine Hayden of the College of Ed - "Integrating Technology in K-12  
> Science". Dr. Hayden is working with Dr. Youwen Ouyang on the course,  
> based on a National Science Foundation grant.

>  
> Since the course description refers to "...engage the scientific  
> research community, university faculty, university computer science  
> (CS) students, and education partners with resources to demonstrate  
> and support utilization of CI tools in the science classrooms..."  
> David B. has asked that I forward the proposal to you, for any comments you may have.

>  
> Thanks very much,  
> Virginia

>  
> Virginia Peters Mann

## Virginia Mann

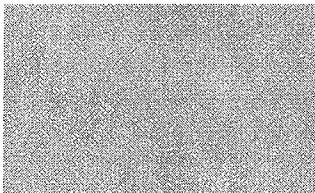
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**From:** Denise Garcia  
**Sent:** Tuesday, November 18, 2008 9:13 AM  
**To:** Virginia Mann  
**Subject:** RE: Extended Learning Topic - "Integrating Technology in K-12 Science"

We are good with it. Thanks, Denise

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**From:** Virginia Mann  
**Sent:** Tue 11/18/2008 7:49 AM  
**To:** Denise Garcia; Jacqueline Trischman; Charles De Leone  
**Subject:** FW: Extended Learning Topic - "Integrating Technology in K-12 Science"



More information on Extended Learning course, below, from Youwen Ouyang....

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**From:** Youwen Ouyang  
**Sent:** Monday, November 17, 2008 7:24 PM  
**To:** Virginia Mann; Rocio Guillen-Castrillo  
**Subject:** RE: Extended Learning Topic - "Integrating Technology in K-12 Science"

Rocio,

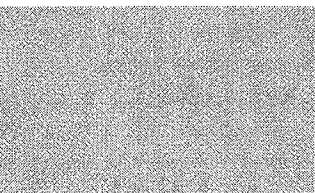
I just want to let you know that this class is offered to middle school teachers. It is not offered to any computer science students. The computer science students mentioned in the course description are those who receive pay from my NSF project to provide classroom support for teachers and kids. Please don't hesitate to let me know if you have any question.

Thanks.

Youwen

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**From:** Virginia Mann  
**Sent:** Mon 11/17/2008 2:59 PM  
**To:** Rocio Guillen-Castrillo  
**Cc:** Youwen Ouyang  
**Subject:** Extended Learning Topic - "Integrating Technology in K-12 Science"



ello,

## Virginia Mann

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**From:** Charles De Leone  
**Sent:** Tuesday, November 25, 2008 11:41 AM  
**To:** Katherine Hayden  
**Cc:** David Barsky; Youwen Ouyang; Virginia Mann  
**Subject:** Re: Integrating Technology in K-12 Science - EX Topic

Hi Kathy and David,

This is a worthy class, and a worthy goal and I am supportive of the effort. My only suggestion would be to incorporate the elements of your reply into the course description as that would improve clarity. In areas where you can be specific, I think it always helps to be specific. Where you can't be specific, I would suggest as much as possible suggesting a range of options.

My best,

Chuck

On 11/24/08 2:32 PM, "Katherine Hayden" <[khayden@csusm.edu](mailto:khayden@csusm.edu)> wrote:

Hi Chuck,

This Topics course is being offered as a result of our two National Science Foundation grants that were awarded for integration of technology in science. One grant was funded through the category of CyberTEAM (Cyberinfrastructure Training, Education, Advancement, and Mentoring) and the 2nd one is ITEST (Innovative Technology Experiences for Students and Teachers). Middle School science teachers are able to receive credit for their participation in the project activities and lesson development matching their textbook adoptions and CA content standards. Nancy Taylor, Science Coordinator for the San Diego County Office of Education and Director for Science Alliance is a CO-PI for one grant and a member of our advisory committee on the 2nd grant. She is a consultant for both projects in the area of science content. In addition, Dr. Joe Keating is a consultant for science and education in the ITEST grant project.

Below is some information related to the questions you've listed:

1. The Topics course focuses on teacher classroom **pedagogy** for planning and using technology to support teaching and learning and for teachers to become CyberReady members of the 21st century workforce. Teachers are learning about Open Source software such as Moodle (similar to WebCT), Web 2.0 tools such as Google Earth, Videoconferencing over high speed networks, and using flash based tools developed by computer science students from CSUSM. The big ideas are based on collaboration with experts from the field of science through connections with teachers during professional development activities and with middle school students in the classroom during project activities designed by the middle school teachers in collaboration with scientists such as: Dr. Debi

Kilb from Scripps Institute of Oceanography Visualization Center where Earth Scientists study earthquakes and science professors from Rochester Institute of Technology specializing in Physics, Chemistry and Earth Sciences.

2. The students are middle school students and the teachers are middle school science teachers. The California middle school science standard content is to be enhanced is science enhanced through the use of technology and through lesson study experiences and collaboration with scientists as mentioned above.

Moodle is a learning management system (like WebCT) used a lot in community schools and hosted on the San Diego SuperComputer Web site. Web based lessons are developed by teachers in collaboration with project leaders in technology and consultants in science to develop Web based lesson plans that use technology. For instance, we recently implemented an Earth Science Lesson through CA State Park in Anza Borrego Desert where a park ranger (previously a