

**California State University, San Marcos General Education Program  
GENERAL EDUCATION NEW COURSE CERTIFICATION REQUEST**

• **AREA B3: Physical Science Lab Only Course**  
See *GE Handbook* for information on each section of this form

**ABSTRACT**

Course Abbreviation and Number: CHEM 150L		Course Title: General Chemistry Laboratory	
Number of Units: 1 _____			
College or Program: <input type="checkbox"/> CHABSS <input checked="" type="checkbox"/> CSM <input type="checkbox"/> CEHHS <input type="checkbox"/> COBA <input type="checkbox"/> Other _____		Desired term of implementation: <input checked="" type="checkbox"/> Fall <input type="checkbox"/> Spring <input type="checkbox"/> Summer Year	Mode of Delivery: <input checked="" type="checkbox"/> face to face <input type="checkbox"/> hybrid <input type="checkbox"/> fully on-line
Course Proposer (please print): Michael H. Schmidt		Email: schmidt@csusm.edu	Submission Date:

**1. Course Catalog Description:** Introduction to some of the basic laboratory techniques used in chemistry. The experiments are designed to complement the material covered in CHEM 150. *Three hours of laboratory per week. Co/Prerequisite: CHEM 150.*

**2. GE Syllabus Checklist: The syllabi for all courses certified for GE credit must contain the following:**

<input checked="" type="checkbox"/>	Course description, course title and course number
<input checked="" type="checkbox"/>	Student learning outcomes for General Education Area and student learning objectives specific to your course, linked to how students will meet these objectives through course activities/experiences
<input checked="" type="checkbox"/>	Topics or subjects covered in the course
<input checked="" type="checkbox"/>	Registration conditions
<input checked="" type="checkbox"/>	Specifics relating to how assignments meet the writing requirement
<input checked="" type="checkbox"/>	Tentative course schedule including readings
<input checked="" type="checkbox"/>	Grading components including relative weight of assignments

**SIGNATURES**

<u>Paul Jansen (for Michael Schmidt)</u>	<u>4/7/14</u>	<u></u>	<u>3/29/14</u>	_____
Course Proposer	Date	Department Chair	date	DC Initial
<i>Please note that the department will be required to report assessment data to the GEC annually.</i>				
_____	_____	Support	Do not support*	Support
Library Faculty	Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	Support	Do not Support*	Approve
Impacted Discipline Chair	Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	Support	Do not Support*	Approve
Impacted Discipline Chair	Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	Support	Do not Support*	Approve
Impacted Discipline Chair	Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**\* If the proposal is not supported, a memo describing the nature of the objection must be provided.**

Course Coordinator: \_\_\_\_\_ Phone \_\_\_\_\_ Email: \_\_\_\_\_

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**Part A: B3 Physical Science Lab Only General Education Learning Outcomes (GELOs) related to course content. [Please type responses into the tables.]**

Physical Science w/ Lab GELOs this course will address:	Course content that addresses each GELO.	How will these GELOs be assessed?
B3.1 Students will demonstrate that they can conduct experiments, make observations, or run simulations using protocols and methods common in the scientific discipline in which the course is offered.	Students do experiments weekly to learn standard chemical techniques of separations, crystallizations, quantitation by mass, the making and dilution of solutions, development and use of calibration curves, qualitative analysis, oxidation-reduction chemistry, determination of chemical formulas, and acid-base titration.	Students are given a lab practical exam in which they need to use their skills in solution preparation and calibration curve generation and use in order to determine unknown concentrations.
B3.2 Students will be able to interpret the results of experiments, observations or simulations, understanding random and systematic errors associated with those activities, and making appropriate conclusions based on theories or models of the scientific discipline in which the course is offered.	Students use conservation of mass, stoichiometry, acid-base theory and redox theory to interpret the result of experiments involved in quantitative and qualitative analysis, with careful attention to the limitations of measurement and both random and systematic error.	The lab final requires students to demonstrate that they understand the nature of random error (in reporting the correct number of significant digits) and systematic error (in predicting the effect of measurement errors on the final result).

**Part B: General Education Learning Outcomes required of all GE courses related to course content:**

GE Outcomes required of <u>all</u> Courses	Course content that addresses each GE outcome?	How will these GELOs be assessed?
Students will communicate effectively in writing to various audiences. (writing)	Students are required to answer post-lab questions in which they explain their reasoning for predicting certain outcomes or coming to conclusions about their experimental data.	Students' weekly lab reports are graded on their ability to communicate their reasoning clearly.
Students will think critically and analytically about an issue, idea or problem. (critical thinking)	Students are required to analyze data from a spectrophotometric experiment in light of principles of limiting reactants to determine the formula of a compound.	Students' lab reports will be assessed to determine whether adequate analytical reasoning is used to arrive at the formula of the compound.
Students will find, evaluate and use information appropriate to the course and discipline. (Faculty are strongly encouraged to collaborate with their library faculty.)	Students are required to use textbooks and other standard reference books to predict which mixtures of inorganic ions result in precipitates or other reaction products.	This is mostly taken care of in the accompanying corequisite, CHEM 150.

**Part C: GE Programmatic Goals: The GE program aligns with CSUSM specific and LEAP Goals. All B3 courses must meet at least one of the LEAP Goals.**

GE Programmatic Goals	Course addresses this LEAP Goal:
LEAP 1: Knowledge of Human Cultures and the Physical and Natural World.	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes
LEAP 2: Intellectual and Practical Skills	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes
LEAP 3: Personal and Social Responsibility	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
LEAP 4: Integrative Learning	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
CSUSM Specific Programmatic Goals	Course content that addresses the following CSUSM goals. Please explain, if applicable.
CSUSM 1: Exposure to and critical thinking about issues of diversity.	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (please describe):
CSUSM 2: Exposure to and critical thinking about the interrelatedness of peoples in local, national, and global	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (please describe):

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contexts.	
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**Part D: Course requirements to be met by the instructor.**

<b>Course Requirements:</b>	<b>How will this requirement be met by the instructor?</b>
Course meets the All-University Writing requirement: A minimum of 850 words of writing shall be required in 1 unit courses.	Students are required to write observations of experiments and to answer post-lab questions which are discussions of their results and the results of similar hypothetical experiments.
Courses shall include an evaluation of written work which assesses both content and writing proficiency, using a writing style and use of language that is appropriate for the sciences.	Students are expected to write answers to post-lab questions with clear, grammatical sentences in a scientific style. Student responses will be graded on both content and writing proficiency.
Courses should demonstrate to students that the applications of physical science principles and theories can lead to lifelong learning in science and to productive and satisfying life choices.	This is mostly taken care of in the accompanying corequisite, CHEM 150.
Courses should demonstrate to students the ways in which science influences and is influenced by societies in both the past and the present.	This is mostly taken care of in the accompanying corequisite, CHEM 150.
Courses should empower students to communicate effectively to others about scientific principles and their application to real-world problems.	This is mostly taken care of in the accompanying corequisite, CHEM 150.
Courses shall build the students' information literacy in a way that is appropriate to the field and level of the course.	As in the corequisite course, students will be required to obtain the relevant chemical information from the periodic table, other reference tables, and standard reference works for use in the interpretation of their data.
Courses shall require students to think critically so that they are able to distinguish scientific arguments from pseudo-scientific myths or opinions.	Students are required to limit their conclusions to what is allowed by the data they have obtained and existing, well-established scientific theories, without recourse to their own opinions or common misconceptions about the physical world.

**Lab Time:** Your Laboratory Time  
**Instructor:** Ann Dickinson  
**Phone:** 760-750-8063  
**Email:** you@csusm.edu  
**Office Hours:** M/W 10 – 11:30 am  
**Office:** SCI2 RM 351

**Lab Coordinator:**  
Michael Schmidt  
schmidt@csusm.edu  
SCI 108; 760-750-4138  
**Include the day and time of your lab section in all emails to Dr. Schmidt!**

**Catalog Course Description:**

Introduction to some of the basic laboratory techniques used in chemistry. The experiments are designed to complement the material covered in CHEM 150. *Three hours of laboratory per week. Co/Prerequisite: CHEM 150.*

**Pre-/Co-requisites**

The pre-requisite for this course is successful completion of ELM. This means that the student is expected to have an excellent knowledge of proportions, percentages, and basic algebra. The co-requisite for this course is CHEM 150 (or consent of instructor). It is highly recommended that students taking this course have had a previous chemistry course at the high school or introductory college level.

**Attendance**

Since the laboratories have been chosen to reinforce concepts and teach lab skills, attendance at all of these sessions is essential. **Missed laboratories CANNOT be made up.** However, should an emergency arise which prevents you from attending laboratory, contact your laboratory instructor as soon as possible. To account for these types of emergencies, your lowest laboratory report grade will be dropped *if there is an instructor-approved excuse for absence.*

**Note: Attendance is mandatory for Safety/Check-in (Week 1). Failure to attend this lab will result in your being administratively dropped from the course.**

**Note: Since CHEM 150 is a co-requisite for the CHEM 150L lab, you must be actively attending the lecture course to remain in the lab course. Failure to attend the lecture course for two consecutive weeks or a total of 10 class periods over the course of the semester will result in being administratively dropped from the course. You can't just attend the laboratory—you have to be actively attending the lecture course.**

**Required Course Materials**

- *Laboratory Manual for Chemistry 150*, Jasien, et al. (2014)
- Safety goggles/glasses and *small* lock for laboratory
- A copy of the *Periodic Table of the Elements* (Reproduction from the textbook is acceptable).

**General Learning Objectives**

After successfully completing this course, the student will:

1. know the appropriate usage of selected pieces of laboratory equipment,
2. be able to utilize some of the basic chemical laboratory techniques,
3. make accurate and precise quantitative measurements (GELO B3.1),
4. assess the effect of various sources of error on experimental results (GELO B3.2),
5. recognize some common chemical reactions, and
6. perform common laboratory calculations that involve stoichiometric relationships.

**Laboratory Schedule**

- You will be allowed **three attempts** at each quiz to achieve a score of 60% or above. (i.e. 3.6 points).
- If you do not receive at least 60% in three attempts, your lab report grade will be assessed a 50% penalty for the lab report (e.g. a 14 out of 15, will be reduced to 7 out of 15).

**Do not** use the forward and back buttons in your browser when taking the quizzes—navigate only by links which appear on the pages. Using the forward and back buttons may result in a quiz malfunction and you may lose one of your chances at the quiz!

There is a **no-credit practice exam** on the Cougar Courses page which you can do an **unlimited** number of times up to the time your last real pre-lab quiz is due. So you can make sure the quiz technology (and you!) are running properly at any time through the semester. The practice quiz has hints about entering numbers in the quizzes.

### Laboratory Practical Exam

By the seventh week of lab, you should have mastered quite a few basic laboratory skills. In the eighth week of lab, you will be given a chemical problem to be solved using those basic lab skills. The best way to prepare for this exam is to do the following:

- (1) **pay attention in lab** and make sure you can **do** all the necessarily manipulations and that you **understand** why you are doing them;
- (2) make sure you **pick up your graded laboratories and review them**, so that you know what you did wrong and how to do it right;
- (3) **save your graded labs** and bring them the day of the lab practical exam, as you will be allowed to refer to them during the lab exam.
- (4) take the brief pre-lab quiz for the lab practical—it will help you remember important material for the practical, and earn you the usual pre-lab quiz points!

### Final Exam

The final laboratory exam is given during the last lab period of the semester. It will cover the laboratory equipment, techniques, and calculations covered during the semester in the performed laboratories. In order to prepare for this exam, you should definitely review your old lab reports and any notes on them that you may have taken. **This exam will not be open note, open lab or open book!**

### Academic Integrity

Violations of the code of ethics (as outlined in the CSUSM policy on Academic Integrity) will not be tolerated. This includes cheating on pre-lab quizzes, the final laboratory exam, plagiarizing of any portion of the laboratory report, and allowing other students to copy your work. Any evidence for violations of academic integrity will be dealt with harshly and reported to the Dean of Students for appropriate disciplinary action.

### Class Etiquette

As a matter of laboratory safety, as well as courtesy to the instructor and other students, please follow these rules:

- Excessive talking or other disruptive behavior is not acceptable and will lead to dismissal from that lab period.
- Cell phones and pagers *must* be turned off prior to coming to lab. If your cell phone or pager is activated during class you will be dismissed from that laboratory period.
- **No eating or drinking** is permitted in the laboratory.
- If you must leave the room for some reason while laboratory is in session, inform your instructor that you are doing so.

**Subject:** Re: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101  
**Date:** Tuesday, April 1, 2014 12:19:41 PM PT  
**From:** Jocelyn Ahlers  
**To:** Paul Jasien

Hi, Paul -  
I apologize for the delay. LBST supports granting B1/B3 credit for these courses.  
Thank you,  
Jocelyn  
--

Jocelyn C. Ahlers  
Chair, Liberal Studies Department

Professor of Linguistics  
Liberal Studies Department  
California State University, San Marcos  
760-750-8014; [jahlers@csusm.edu](mailto:jahlers@csusm.edu)

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**From:** Paul Jasien <[jasien@csusm.edu](mailto:jasien@csusm.edu)>  
**Date:** Wednesday, March 26, 2014 4:22 PM  
**To:** Edward Price <[eprice@csusm.edu](mailto:eprice@csusm.edu)>, Jocelyn Ahlers <[jahlers@csusm.edu](mailto:jahlers@csusm.edu)>  
**Subject:** FW: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

Dear Colleague,

Last Thursday, I sent you a series of documents related to re-certifying CHEM 101, 150, and 150L as LDGE courses. (See below). Hopefully, you have found time to review these. If not, I would appreciate it if you could review these and send me an email indicating whether you SUPPORT or DO NOT SUPPORT granting B1/B3 credit for these courses.

Thank you.  
Paul

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**From:** Paul Jasien <[jasien@csusm.edu](mailto:jasien@csusm.edu)>  
**Date:** Thu, 20 Mar 2014 13:20:21 -0700  
**To:** Edward Price <[eprice@csusm.edu](mailto:eprice@csusm.edu)>, Andre Kundgen <[akundgen@csusm.edu](mailto:akundgen@csusm.edu)>, Tracey Brown <[traceyb@csusm.edu](mailto:traceyb@csusm.edu)>, <[jnessler@csusm.edu](mailto:jnessler@csusm.edu)>, Jocelyn Ahlers <[jahlers@csusm.edu](mailto:jahlers@csusm.edu)>, Yvonne Meulemans <[ymeulema@csusm.edu](mailto:ymeulema@csusm.edu)>  
**Cc:** Marshall Whittlesey <[mwhittle@csusm.edu](mailto:mwhittle@csusm.edu)>  
**Subject:** GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

Dear Colleague,

As part of the recertification process for LDGE, we are required to obtain signatures from ALL affected constituencies, which is why you are receiving this email. Instead of running around trying to obtain hard copy signatures from you, I am emailing you the required information needed for your review. Attached are the recertification documents and sample syllabi for CHEM 101, CHEM 150, and CHEM 150L.

**Please review these forms and send an email to me signifying whether you SUPPORT or DO NOT SUPPORT granting B1/B3 credit for these courses.**

If you have any questions, I will be happy to discuss them with you.  
Sincerely,

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**Subject:** Re: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101  
**Date:** Sunday, March 23, 2014 10:11:42 AM PT  
**From:** Talitha Matlin  
**To:** Paul Jasien

Hi Paul,

These look good to me. The Library supports the recert of these classes.

Best,  
Talitha

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**From:** Paul Jasien <jasien@csusm.edu>  
**Date:** Friday, March 21, 2014 8:12 AM  
**To:** tmatlin <tmatlin@csusm.edu>  
**Subject:** Re: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

OK. Thank you.

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**From:** Talitha Matlin <tmatlin@csusm.edu>  
**Date:** Fri, 21 Mar 2014 08:02:13 -0700  
**To:** Paul Jasien <jasien@csusm.edu>  
**Subject:** FW: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

Hi Paul,

I just wanted to let you know that Yvonne forwarded this to me and I'll be taking a look over the next couple of days.

Best,  
Talitha

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**From:** Paul Jasien <jasien@csusm.edu>  
**Date:** Thursday, March 20, 2014 at 1:20 PM  
**To:** Edward Price <eprice@csusm.edu>, Andre Kundgen <akundgen@csusm.edu>, Tracey Brown <traceyb@csusm.edu>, Jeff Nessler <jnessler@csusm.edu>, Jocelyn Ahlers <jahlers@csusm.edu>, Yvonne Meulemans <ymeulema@csusm.edu>  
**Cc:** Marshall Whittlesey <mwhittle@csusm.edu>  
**Subject:** GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

Dear Colleague,

As part of the recertification process for LDGE, we are required to obtain signatures from ALL affected constituencies, which is why you are receiving this email. Instead of running around trying to obtain hard copy signatures from you, I am emailing you the required information needed for your review. Attached are the recertification documents and sample syllabi for CHEM 101, CHEM 150, and CHEM 150L.

**Please review these forms and send an email to me signifying whether you SUPPORT or DO NOT SUPPORT granting B1/B3 credit for these courses.**

If you have any questions, I will be happy to discuss them with you.

**Subject:** RE: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101  
**Date:** Thursday, March 20, 2014 6:14:53 PM PT  
**From:** Tracey Brown  
**To:** Jeff Nessler, Paul Jasien, Edward Price, Andre Kundgen, Jocelyn Ahlers, Yvonne Meulemans  
**CC:** Marshall Whittlesey

Biology supports these recertifications as well.

Sent from my Verizon Wireless 4G LTE Smartphone

----- Original message -----

**From:** Jeff Nessler  
**Date:** 03/20/2014 5:27 PM (GMT-07:00)  
**To:** Paul Jasien ,Edward Price ,Andre Kundgen ,Tracey Brown ,Jocelyn Ahlers ,Yvonne Meulemans  
**Cc:** Marshall Whittlesey  
**Subject:** Re: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

Kinesiology supports the re-certification of these Chemistry courses.

Jeff Nessler, Ph.D.  
Associate Professor and Chair  
Department of Kinesiology  
California State University, San Marcos  
University Hall 308  
760-750-7352

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**From:** Paul Jasien <jasien@csusm.edu>  
**Date:** Thursday, March 20, 2014 12:20 PM  
**To:** Edward Price <eprice@csusm.edu>, Andre Kundgen <akundgen@csusm.edu>, Tracey Brown <traceyb@csusm.edu>, Jeff Nessler <jnessler@csusm.edu>, Jocelyn Ahlers <jahlers@csusm.edu>, Yvonne Meulemans <ymeulema@csusm.edu>  
**Cc:** Marshall Whittlesey <mwhittle@csusm.edu>  
**Subject:** GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

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**Please review these forms and send an email to me signifying whether you SUPPORT or DO NOT SUPPORT granting B1/B3 credit for these courses.**

If you have any questions, I will be happy to discuss them with you.

Sincerely,  
Paul

Dr. Paul Jasien



**Subject:** Re: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

**Date:** Thursday, March 20, 2014 5:27:35 PM PT

**From:** Jeff Nessler

**To:** Paul Jasien, Edward Price, Andre Kundgen, Tracey Brown, Jocelyn Ahlers, Yvonne Meulemans

**CC:** Marshall Whittlesey

Kinesiology supports the re-certification of these Chemistry courses.

Jeff Nessler, Ph.D.  
Associate Professor and Chair  
Department of Kinesiology  
California State University, San Marcos  
University Hall 308  
760-750-7352

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**From:** Paul Jasien <[jasien@csusm.edu](mailto:jasien@csusm.edu)>

**Date:** Thursday, March 20, 2014 12:20 PM

**To:** Edward Price <[eprice@csusm.edu](mailto:eprice@csusm.edu)>, Andre Kundgen <[akundgen@csusm.edu](mailto:akundgen@csusm.edu)>, Tracey Brown <[traceyb@csusm.edu](mailto:traceyb@csusm.edu)>, Jeff Nessler <[jnessler@csusm.edu](mailto:jnessler@csusm.edu)>, Jocelyn Ahlers <[jahlers@csusm.edu](mailto:jahlers@csusm.edu)>, Yvonne Meulemans <[ymeulema@csusm.edu](mailto:ymeulema@csusm.edu)>

**Cc:** Marshall Whittlesey <[mwhittle@csusm.edu](mailto:mwhittle@csusm.edu)>

**Subject:** GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

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If you have any questions, I will be happy to discuss them with you.

Sincerely,

Paul

Dr. Paul Jasien  
Professor of Physical Chemistry  
Department of Chemistry & Biochemistry  
California State University, San Marcos

**Subject:** RE: GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101  
**Date:** Thursday, March 20, 2014 5:19:19 PM PT  
**From:** Andre Kundgen  
**To:** Paul Jasien, Edward Price, Tracey Brown, Jeff Nessler, Jocelyn Ahlers, Yvonne Meulemans  
**CC:** Marshall Whittlesey

Mathematics SUPPORTS granting B1/B3 credit to these Chemistry courses.

Best wishes,

Andre

Dr. Andre Kundgen  
Professor and Department Chair  
Department of Mathematics  
California State University San Marcos

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**From:** Paul Jasien  
**Sent:** Thursday, March 20, 2014 1:21 PM  
**To:** Edward Price; Andre Kundgen; Tracey Brown; Jeff Nessler; Jocelyn Ahlers; Yvonne Meulemans  
**Cc:** Marshall Whittlesey  
**Subject:** GE Recertification Areas B1 & B3 - CHEM 150, 150L, and 101

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**Please review these forms and send an email to me signifying whether you SUPPORT or DO NOT SUPPORT granting B1/B3 credit for these courses.**

If you have any questions, I will be happy to discuss them with you.

Sincerely,  
Paul

Dr. Paul Jasien  
Professor of Physical Chemistry  
Department of Chemistry & Biochemistry  
California State University, San Marcos