SANTA MONICA COLLEGE
ACADEMIC
SENATE
1900 Pico Boulevard
Santa Monica, CA 90405
310.434.4611

CURRICULUM COMMITTEE ❙ AGENDA

Wednesday, April 3, 2013 ❙ 3:00 p.m.
Loft Conference Room – Drescher Hall 300-E

Members:

Guido Davis Del Piccolo, *Chair*	Roberto Gonzalez	Walter Meyer	Deborah Schwyter
Georgia Lorenz, *Vice Chair*	Jemal Hussein	Estela Narrie	Jeffery Shimizu
Brenda Antrim	Hasun Khan	James Pacchioli	David Shirinyan
Teri Bernstein	Randal Lawson	Elaine Roque	Gary Taka
Ellen Cutler	Emily Lodmer	Josh Sanseri	Toni Trives
Keith Fiddmont	Walt Louie		Julie Yarrish

Interested Parties:

Maria Bonin	Mary Colavito	Mitra Moassessi	Linda Sinclair
Patricia Burson	Kiersten Elliott	Steven Myrow	Eleanor Singleton
Jamie Cavanaugh	Mona Martin	Katharine Muller	Chris Young
Jonathan Cohanne			

Ex-Officio Members:

Janet Harclerode	Parker Jean

A G E N D A

(Items for action are listed alphabetically; items for information are listed numerically)

I. Call to order

II. Public Comments*

III. Approval of Minutes……..……3

IV. Chair's report

V. Information Items:

Course Updates –

1. HISTORY 1 History Of Western Civilization I
2. HISTORY 2 History Of Western Civilization II
3. HISTORY 11 The United States through Reconstruction
4. HISTORY 12 The United States History
5. HISTORY 33 World Civilizations I
6. HISTORY 34 World Civilizations II
7. MEDIA 10 Media, Gender, and Race

**Five minutes is allotted to any member of the public who wishes to address the Curriculum Committee on a specific agenda item, for general public comments, or non-agenda items.*

VI. Action Items:

New Course –

a. MLT 5: Clinical Microbiology……..6
b. MLT 6: Phlebotomy for MLT……13
c. MLT 7: Clinical Practicum……..25

Distance Education –

d. MLT 2: Hematology, Coagulation, Urine and Body Fluid Analysis……...38
e. MLT 3: Blood Banking and Immunology……47
f. MLT 4: Clinical Chemistry……..56
g. MLT 5: Clinical Microbiology……...9
h. MLT 6: Phlebotomy for MLT……16
i. MLT 7: Clinical Practicum……..28

New Program –

j. Medical Lab Technician AS degree……60

VII. Adjournment

Please advise Guido Davis Del Piccolo (x. 3561), Georgia Lorenz (x. 4277) or Grace Smith (x. 4454) if you are unable to attend this meeting.

SANTA MONICA COLLEGE
ACADEMIC
SENATE
1900 Pico Boulevard
Santa Monica, CA 90405
310.434.4611

CURRICULUM COMMITTEE | MINUTES

Wednesday, March 20, 2013 | 3:00 p.m.
Loft Conference Room – Drescher Hall 300-E

Members Present:

Guido Davis Del Piccolo, *Chair*	Maral Hyeler	James Pacchioli	David Shirinyan
Georgia Lorenz, *Vice Chair*	Walt Louie	Elaine Roque	Gary Taka
Brenda Antrim	Keith Fiddmont	Josh Sanseri	Toni Trives
Teri Bernstein	Walter Meyer	Deborah Schwyter	Julie Yarrish
Roberto Gonzalez	Estela Narrie	Jeffery Shimizu	

Members Absent:

Ellen Cutler	Randal Lawson	Emily Lodmer

Others Present:

Fariba Bolandhemat	Jinan Darwiche

M I N U T E S

(Items for action are listed alphabetically; items for information are listed numerically)

I. Call to order:
The meeting was called to order at 3:09 p.m.

II. Public Comments:
None.

III. Approval of Minutes:
The minutes of February 20, 2013 were approved as presented.

IV. Chair's report:

- The Chair reported that he provided the Committee's feedback to the ECE department regarding the addition of the word "Career" to the AS degree and Certificate of Achievement (approved by Curriculum Committee on February 20, 2013). The department confirmed this as their final decision and the Senate approved this change on February 26, 2013.

- The Chair, Vice Chair and Estela Narrie met with representatives from Art History, Studio Arts, Theater Arts, and Kin/PE to discuss the C-ID process with those areas that either have or are preparing an Associate in Arts/Associate in Science for Transfer in lieu of the regular Curriculum meeting on March 6, 2013.

- The Chair discussed some of the problems being experienced with the C-ID process and the proposed creation of new Bachelor's degrees at some CSUs to accommodate students with an AA/AS-T degree. He mentioned that some resolutions were being written for the ASCCC by Articulation Officers in Region 10.

V. Information items:

(Course Updates)

1. NURSNG 16 Physical Assessment
2. NURSNG 35 Advanced Medical-Surgical Nursing 2
3. NURSNG 40 Nursing Of Children 1
4. NURSNG 40L Nursing Of Children Lab 1
5. NURSNG 60 Multicultural Health And Healing Practices
6. RES TH 30 Adult Critical Care Monitory And Diagnostics

(Program Review)

7. COSM 10 Introduction To Cosmetology And Related Science
8. COSM 11B Hair Styling 1
9. COSM 11D Permanent Wave 1
10. COSM 14A Curly Hair Techniques 1
11. COSM 14B Curly Hair Techniques 2
12. COSM 16 Nail Care 1
13. COSM 20 Related Science 2
14. COSM 21A Hair Cutting 2
15. COSM 21D Permanent Waving 2
16. COSM 24 Curly Hair Techniques 2
17. COSM 26 Nail Care 2
18. COSM 31B Hair Styling 3
19. COSM 31C Hair Coloring 3
20. COSM 36 Nail Care 3
21. COSM 38 Skin Care 3
22. COSM 41B Hairstyling 4
23. COSM 46 Nail Care 4/Manicuring 4
24. COSM 48 Skin Care 4
25. COSM 64 Salon Management

VI. Action Items:

(New Course)

a. **CS 87A* - Python Programming** – presented by Jinan Darwiche.
Maral moved to approve CS 87A with the following changes:
- *Course number changed to CS 87A
- Edits in the DE Application in the "Student Interactions" and "Assessment Best Practices" sections.

Motion made by: Maral Hyeler **Seconded by:** Brenda Antrim
The motion passed unanimously.

Approval of Prerequisite – CS 3: Introduction to Computer Systems

Motion made by: Teri Bernstein **Seconded by:** Estela Narrie
The motion passed unanimously.

(Distance Education)

b. CS 87A: Python Programming
Motion made by: Julie Yarrish **Seconded by:** Josh Sanseri
The motion passed unanimously.

c. MLT 3: Blood Banking and Immunology
d. MLT 4: Clinical Chemistry

The Chair informed the Committee that the course author and department chair were both unable to attend the meeting to present MLT 3 and MLT 4 (DE) and had requested these two items be postponed to the April 3 Curriculum meeting.

Motion: To postpone (c) MLT 3 and (d) MLT 4 till the next Curriculum meeting on April 3, 2013

Motion made by: Keith Fiddmont **Seconded by:** Maral Hyeler
The motion passed unanimously.

(Degrees/Certificates)

Name Change

e. Associate in Science Degree ~~and Certificate of Achievement~~: Business Administration to Business Administration – Professional (addition of the word "Professional" to distinguish it from the AS-T in Business Administration)

Motion made by: Estela Narrie **Seconded by:** James Pacchioli
The motion passed unanimously.
(Note: The agenda listed a Certificate of Achievement, which is not in existence)

Addition of an elective course

f. Associate in Science Degree and Certificate of Achievement: Database Applications Developer (Addition of CS 87A: Python Programming as an elective course)

Motion made by: James Pacchioli **Seconded by:** Brenda Antrim
The motion passed unanimously.

g. Associate in Science Degree and Certificate of Achievement: Web Programmer (Addition of CS 87A: Python Programming as an elective course)

Motion made by: James Pacchioli **Seconded by:** Brenda Antrim
The motion passed unanimously.

VII. New Business:

Prerequisite Discussion: There will be discussions in the near future on the need to update the Administrative Regulations relating to Prerequisites. Walter Meyer suggested asking the Allied Health disciplines which had enforced a prerequisite (English 1) to provide some feedback. There was a brief discussion on the advantages and disadvantages of enforcing prerequisites and the need to see data that would provide more information on the correlation of enforcing prerequisites to student success rates.

VIII. Adjournment

The meeting was adjourned at 4:10 p.m.

Santa Monica College
New SMC Course
Expanded Course Outline for MLT 5 - Clinical Microbiology

Course Cover	
Discipline	MLT-Medical Laboratory Technician
Course Number	5
Full Course Title	Clinical Microbiology
Catalog Course Description	Course will emphasize basic skills, principles, and laboratory techniques for staining, culturing, isolation, biochemical techniques and identification of human pathogenic microorganisms. Included in the course are techniques used to determine the susceptibility of pathogenic microorganisms to different antibiotics and other drugs. This course will also cover basic principles in identification of parasites, viruses, and fungal microorganisms
Rationale	
Rationale	The clinical microbiology course is essential to the course listings offered in the MLT program to satisfy national and state accreditation requirements
Proposal Information	
Proposed Start	Year: 2013 Semester: Fall
Proposed for Distance Ed	Yes
Proposed for Global Citizenship	No
Course Unit/Hours	
Variable Hour Exist	NO
Credit Hours	Min: 5.00
Weekly Lecture Hours	Min: 5.00 (Sem: 90)
Weekly Laboratory Hours	Min: 4.00 (Sem: 72)
Weekly Arranged Hours	Min:
Total Semester Instructional Hours	162.00
Repeatability	May be repeated 0 time(s)
Grading Methods	Letter Grade or P/NP

Minimum Qualification	
Minimum Qualifications:	Other
Program Applicability	
Designation	Credit - Degree Applicable
Proposed For	**AS Degree** -Medical Laboratory Technician
Course Objectives	
Upon satisfactory completion of the course, students will be able to:	
1. Describe the modes of disease transmission and host susceptibility.	
2. Identify organisms of clinical or medical importance.	
3. Correlate laboratory results such as culture and microscopic morphology of microorganisms, biochemical, and molecular studies with diseases.	
4. Perform and interpret susceptibility testing.	
5. Practice safe laboratory techniques and infection control in the microbiology department.	
6. Perform, interpret, and troubleshoot quality control procedures.	
7. Explain the principle, operation, and maintenance of automated instruments.	
8. Describe procedures used for specimen collection of microbiological specimens from various sites in the body.	
Course Content	
20%	Bacteriology: Pre-analytical assessment and specimen collection
20%	Bacteriology: Analytical assessment - organism identification, biochemical assays, and susceptibility testing
20%	Bacteriology: Post-analytical assessment - reporting critical and normal values and troubleshooting
10%	Case studies
10%	Mycology
10%	Virology
10%	Parasitology
Total: 100%	
Lab Content	
30%	Pathogenic Organism Identification
30%	Susceptibility Testing
20%	Virology, Mycology, and Parasitology
10%	Automated Testing in Microbiology
10%	Specimen Collection and Processing
Total: 100%	
Methods of Evaluation	
Methods	• 5% - Class Participation • 30% - Exams/Tests

	Written exams will be in a multiple and short answer format that will cover the chapters in the textbook as well as lecture items. • 40% - Final exam A comprehensive written final exam will cover both the lecture and laboratory portions of the class topics covered. • 10% - Lab Reports Laboratory results and identification work-up will be recorded in a lab notebook that will simulate a laboratory report. • 15% - Quizzes Weekly lecture and lab quizzes will be given. • 100% - Total
Methods of Presentation	
Opt Heading	
Methods	Experiments Group Work Lecture and Discussion Observation and Demonstration
Appropriate Textbooks	
Textbooks such as the following are appropriate:	
Formatting Style	APA
Textbooks	
1. Forbes, B.A., D.F. Sahm, and A.S. Weissfeld. *Bailey & Scott's Diagnostic Microbiology - Text and Study Guide Package, 12e [Hardcover]*, 12 ed. Elsevier/ Evolve, 2007, ISBN: 0323052541.	
Assignments	
Sample Assignment	
I. Lecture Assignment: a. Draw a flow chart of organisms that belong to the Streptococcus genus. b. Include in the flow chart the biochemical properties of each of the pathogenic organisms and how they are used to distinguish the organisms from each other. 2. Laboratory Assignment: a. Set up a Triple Sugar Iron assay for the following organisms in the Enterobaceriaceae family: E. coli, S. typhimurium, S. sonnei, P. mirabilis, and P. aeruginosa. b. Classify the organisms as fermenters or non-fermenters according to the TSI results. c. Determine the antibiotic susceptibility patterns of each of the represented organisms.	

Pre/Corequisites & Advisories	
Prerequisite MLT 1	
Library	
List of suggested materials has been given to librarian?	No
Library has adequate materials to support course?	No
Additional Comments/Information	
Student Learning Outcomes	
1. Classify pathogenic organisms according to their characteristics and properties as bacterial, viral, parasitic, or fungal	
2. Select the appropriate media used to culture human specimens and correctly identify the organisms, if any, that are found.	
3. Determine the antibiotic susceptibility patterns of the most common pathogens encountered in the clinical laboratory.	
4. Identify pre-analytical factors that can potentially affect the test results and utilize the specimen acceptance and rejection criteria prior to specimen analysis.	
Transfer/General Ed	
IGETC Area:	
Does NOT satisfy any area of IGETC:	
CSU GE Area:	
Does NOT satisfy any area of CSU GE:	
SMC GE Area:	
Does NOT satisfy any area of SMC GE:	
Distance Ed **Distance Education Application**	
Delivery Methods	Online Hybrid (51% or more of course is held on-campus)
Need/Justification	
Distance Education Quality	
Quality Assurance	Course objectives have not changed Course content has not changed Method of instruction meets the same standard of course quality Outside assignments meet the same standard of course quality Serves comparable number of students per section as a traditional course in the same department Required texts meet the same standard of course quality

Additional Considerations	Evaluation methods are in place to produce an annual report to the Board of Trustee on activity in offering this course or section following the guidelines to Title 5 Section 55317 (see attachment) and to review the impact of distance education on this program through the program review process specified in accreditation standard 2B.2. Adequate technology resources exist to support this course/section Library resources are accessible to students Specific expectations are set for students with respect to a minimum amount of time per week for student and homework assignments Adequately fulfills "effective contact between faculty member and student" required by Title 5. Will not affect existing or potential articulation with other colleges Special needs (i.e., texts, materials, etc.) are reasonable Complies with current access guidelines for students with disabilities
Guidelines and Questions for Curriculum Approval of a Distance Education Course Student Interactions	
Student-Instructor Interaction	The interaction between students and instructor online will be via email, discussion threads, and powerpoint lectures with designated assignments and objectives will be available on e-companion. The instructor will be available at specific block times during the week (3 days per week, 1 hour per session) for the students to interact and discuss concerns and questions with the instructor. The instructor will be available by email at all times and have additional office hours for in-person/ on-campus meetings.
Student-Student Interaction	Students will be required to interact online via discussion thread and facilitated group email discussions at least 3 times per week at their own time. They will be required to submit questions, respond to relevant questions posted by the instructor and/or other students, and comment on topics and ideas presented. These interactions will be tracked by the instructor to document their online participation in the discussions.
Student-Content Interaction	The students will be able to access their powerpoint lecture materials as well as objectives and assignments for the course. They will also be required to access the socrative website via www.socrative.com to take their online quizzes for which immediate feedback is available. Access to the website is by instructor permission only and quizzes are timed. There will be weekly quizzes for this course. All exams will be administered on ground. Each chapter lecture module will have a homework assessment included that has an estimated time of 45 minutes to an hour to complete. They will have at least 4 such modules during the week.

Online class	Brief Description	Percentage

activities that promote class interaction and engagement		of Online Course Hours
Study and/or Review Sessions	Students will be given an online module for lectures and an accompanying study guide or assignment questions for which they can use their online lecture modules and/or textbook to answer the questions. These will be submitted to the instructor online via email for evaluation. In addition, students will be required to submit questions to the discussion thread at least 3 times a week and submit answers to questions posted by the instructor at least three times a week.	20%

Describe how content will be organized and delivered in the interest of achieving course outcomes/objectives (e.g. what are the methods of instruction being used, technologies used, approximate time schedule, necessary instructional materials.)

The content will be organized according to the textbook chapter presentation and references. The delivery of the content will be by the following methods: online lecture and assignment modules. Lectures will be presented by powerpoint and assignments will be posted per lecture module. In addition, students will also take a short online quiz following the lecture module. These will take approximately 45 minutes per chapter module. There will be a minimum of at least 4 such exercises per week. Technologies required would be student access to e-companion.

Describe the technical qualifications an instructor would need and the support that might be necessary for this course to be delivered at a distance (e.g. the college?s existing technology, CCCConfer certification, other specialized instructor training, support personnel, materials and resources, technical support, etc.)

The instructor would need to be trained to use and be supported by the college?s existing technology such as e-companion.

Describe any student support services one might want or need to integrate into the online classroom for this course (e.g. links to counseling, financial aid, bookstore, library, etc.)

Students will need to have access to online resources provided by the main textbook that we will be using and this needs to be integrated in the online materials used by the students.

Describe how the design of the course will ensure access for students with disabilities including compliance with the regulations of Section 508 of the Rehabilitation Act.

For any videos and demonstrations used online, captions will be provided to ensure access for all students.

Using one of the course objectives, describe an online lesson/activity that might be used in the course to facilitate student learning of that objective. Be sure the sample lesson/activity includes reference to the use of online teaching tools (such as drop box or threaded discussion, or multimedia such as Articulate, Flash, Jing, etc.).

Course objective: Determine the etiologic agent and proposed antibiotic treatment for the following cases studies that clinically present with microbiological infections.

Online lesson/activity used in the course:
We will use a threaded discussion to facilitate learning and mastery of this objective. Students will be given case studies to discuss their approaches on how to solve the cases online. They will be given the opportunity to ask questions, discuss, and check their answers after the discussion period.

Attached Files

No Files attached

Santa Monica College
New SMC Course
Expanded Course Outline for MLT 6 - Phlebotomy for MLT

Course Cover	
Discipline	MLT-Medical Laboratory Technician
Course Number	6
Full Course Title	Phlebotomy for MLT
Catalog Course Description	Emphasis on providing students with a comprehensive knowledge of various venipuncture and skin puncture techniques. Topics covered include specimen collection and handling, universal precautions, laboratory safety, and basic medical terminology. It will also cover concepts in providing care for a culturally diverse population.
Proposal Information	
Proposed Start	Year: 2013 Semester: Fall
Proposed for Distance Ed	Yes
Proposed for Global Citizenship	No
Course Unit/Hours	
Variable Hour Exist	NO
Credit Hours	Min: 5.00
Weekly Lecture Hours	Min: 4.50 (Sem: 81)
Weekly Laboratory Hours	Min: 4.50 (Sem: 81)
Weekly Arranged Hours	Min:
Total Semester Instructional Hours	162.00
Repeatability	May be repeated 0 time(s)
Grading Methods	Letter Grade or P/NP
Minimum Qualification	
Minimum Qualifications:	Other
Program Applicability	
Designation	Credit - Degree Applicable

Proposed For	**AS Degree** -Medical Laboratory Technician
Course Objectives	
Upon satisfactory completion of the course, students will be able to:	
1. Demonstrate knowledge of health care delivery system as well as the basic medical terminology used	
2. Describe effective ways to protect health care workers and patients against blood borne pathogens.	
3. Demonstrate a basic understanding of the anatomy and physiology of body systems with emphasis on the circulatory system	
4. Associate test requisitions with the specific clinical laboratory departments that perform the tests.	
5. Describe the appropriate use of collection equipment with specific emphasis on tube additives, their mechanism, and the order of draw.	
6. Describe effective ways of protecting patients from nosocomial infections.	
7. Demonstrate knowledge in the area of first aid, mechanical and electrical safety, as well as fire safety.	
8. Demonstrate proper techniques to safely perform venipuncture and skin puncture.	
9. Describe the common pre-analytical errors that can significantly alter results.	
10. Describe the correct process relevant to requisition assessment, specimen transport, and processing.	
11. Identify and perform laboratory protocols to ensure quality assurance in phlebotomy.	
12. Demonstrate understanding of the basic concepts of communication, personal and patient interaction, stress management, professional behavior, and legal implications of the clinical work environment	
Course Content	
30%	Venipuncture Equipment and Techniques
10%	Skin Puncture Equipment and Techniques
20%	Specimen Collection and Processing
10%	State and federal regulations regarding phlebotomy
20%	Clinical Practice
10%	Professionalism
Total: 100%	
Lab Content	
30%	Venipuncture Equipment, Skills, and Technique
10%	Skin Puncture Equipment, Skills, and Technique
10%	Infection Control, Safety, and First Aid
10%	Professional Ethics, Legal, and Regulatory Issues
10%	Specimen Handling, Transportation, and Processing
10%	Point of Care Testing and Competency
10%	Pre-Analytical Complications (Phlebotomy) that Cause Medical

	Errors
10%	Phlebotomy Practice and Quality Assessment
Total: 100%	

Methods of Evaluation

Methods	• 5% - Class Participation • 20% - Exams/Tests • 30% - Final exam • 10% - Group Projects • 5% - Oral Presentation • 30% - Other Clinical Training at affiliate sites • 100% - Total

Methods of Presentation

Opt Heading	
Methods	Group Work Lab Lecture and Discussion Observation and Demonstration Work Experience (internship)

Appropriate Textbooks

Textbooks such as the following are appropriate:

Formatting Style	APA

Textbooks

1. Garza, D., K. Becan-McBride. *Phlebotomy Handbook: Blood Specimen Collection from Basic to Advanced*, ed. Pearson, 2009, ISBN: 0135134242.

Assignments

Sample Assignment

Demonstrate the correct steps (26 steps) to obtain a blood sample via venipuncture techniques:

a. Patient Identification
b. Test Requisition
c. Vein selection
d. Selection of appropriate equipment.
e. Selection of appropriate blood tubes.
f. Correct needle insertion and specimen retrieval
g. Correct needle and apparatus removal.
h. Patient care after needle removal.
i. Distribution of specimens to appropriate laboratory department.

Pre/Corequisites & Advisories

Prerequisite
MLT 1

Library	
List of suggested materials has been given to librarian?	No
Library has adequate materials to support course?	No
Additional Comments/Information	

Student Learning Outcomes
1. Demonstrate venipuncture skills by selecting the appropriate equipment and materials depending on the size and location of the vein.
2. Describe phlebotomist's role in protecting patient privacy and confidentiality in the workplace to abide by federal, state, and institutional regulations
3. Safely perform venipunctures and skin punctures according to a sequential 26 point step procedure presented in class.
4. Apply the specimen rejection and acceptance criteria to evaluate the suitability of specimens submitted in the clinical laboratory for analysis.

Distance Ed Distance Education Application	
Delivery Methods	Online Hybrid (51% or more of course is held on-campus)
Need/Justification	
Distance Education Quality	
Quality Assurance	Course objectives have not changed Course content has not changed Method of instruction meets the same standard of course quality Outside assignments meet the same standard of course quality Serves comparable number of students per section as a traditional course in the same department Required texts meet the same standard of course quality
Additional Considerations	Evaluation methods are in place to produce an annual report to the Board of Trustee on activity in offering this course or section following the guidelines to Title 5 Section 55317 (see attachment) and to review the impact of distance education on this program through the program review process specified in accreditation standard 2B.2. Adequate technology resources exist to support this course/section Library resources are accessible to students Specific expectations are set for students with respect to a minimum amount of time per week for student and homework assignments Adequately fulfills “effective contact between faculty member and student” required by Title 5.

	Will not affect existing or potential articulation with other colleges Special needs (i.e., texts, materials, etc.) are reasonable Complies with current access guidelines for students with disabilities
Guidelines and Questions for Curriculum Approval of a Distance Education Course Student Interactions	
Student-Instructor Interaction	The interaction between students and instructor online will be via email, discussion threads, and powerpoint lectures with designated assignments and objectives will be available on e-companion. The instructor will be available at specific block times during the week (3 days per week, 1 hour per session) for the students to interact and discuss concerns and questions with the instructor. The instructor will be available by email at all times and have additional office hours for in-person/ on-campus meetings
Student-Student Interaction	Students will be required to interact online via discussion thread and facilitated group email discussions at least 3 times per week at their own time. They will be required to submit questions, respond to relevant questions posted by the instructor and/or other students, and comment on topics and ideas presented. These interactions will be tracked by the instructor to document their online participation in the discussions.
Student-Content Interaction	The students will be able to access their powerpoint lecture materials as well as objectives and assignments for the course. They will also be required to access the socrative website via www.socrative.com to take their online quizzes for which immediate feedback is available. Access to the website is by instructor permission only and quizzes are timed. There will be weekly quizzes for this course. All exams will be administered on ground. Each chapter lecture module will have a homework assessment included that has an estimated time of 45 minutes to an hour to complete. They will have at least 4 such modules during the week.

Online class activities that promote class interaction and engagement	**Brief Description**	**Percentage of Online Course Hours**
Study and/or Review Sessions	Students will be given an online module for lectures and an accompanying study guide or assignment questions for which they can use their online lecture modules and/or textbook to answer the questions. These will be submitted to the instructor online via email for evaluation. In addition, students will be required to submit	20%

	questions to the discussion thread at least 3 times a week and submit answers to questions posted by the instructor at least three times a week.	

Describe how content will be organized and delivered in the interest of achieving course outcomes/objectives (e.g. what are the methods of instruction being used, technologies used, approximate time schedule, necessary instructional materials.)

The content will be organized according to the textbook chapter presentation and references. The delivery of the content will be by the following methods: online lecture and assignment modules. Lectures will be presented by powerpoint and assignments will be posted per lecture module. In addition, students will also take a short online quiz following the lecture module. These will take approximately 45 minutes per chapter module. There will be a minimum of at least 4 such exercises per week. Technologies required would be student access to e-companion. Students will be given regular assignments (at least 3-4 times per week) and they will be submitted to the instructor online. The instructors will then submit feedback within 24 hours of homework submission.

Describe the technical qualifications an instructor would need and the support that might be necessary for this course to be delivered at a distance (e.g. the college?s existing technology, CCCConfer certification, other specialized instructor training, support personnel, materials and resources, technical support, etc.)

The instructor would need to be trained to use and be supported by the college?s existing technology such as e-companion.

Describe any student support services one might want or need to integrate into the online classroom for this course (e.g. links to counseling, financial aid, bookstore, library, etc.)

Students will need to have access to online resources provided by the main textbook that we will be using and this needs to be integrated in the online materials used by the students.

Describe how the design of the course will ensure access for students with disabilities including compliance with the regulations of Section 508 of the Rehabilitation Act.

For any videos and demonstrations used online, captions will be provided to ensure access for all students.

Using one of the course objectives, describe an online lesson/activity that might be used in the course to facilitate student learning of that objective. Be sure the sample lesson/activity includes reference to the use of online teaching tools (such as drop box or threaded discussion, or multimedia such as Articulate, Flash, Jing, etc.).

Course Objective: Label the appropriate arm veins that are typically accessed for venipuncture. Be sure to sequentially number the veins, with the lowest number ("1") as the best vein to evaluate first and highest number as those that can be used if none of the other veins are accessible.

Activity: Using Flash technology integrated in their learning module assessment, the students will have the ability to evaluate and implement vein selection to demonstrate that they understand why there are veins that are more appropriate to access first than others.

Course objective: Describe the appropriate order of draw by selecting the specific blood tubes (anticoagulant or additive based) for each case study provided.

Activity: Groups of students will be given case studies for which they are required to participate in a threaded discussion format. They will discuss the specific order of blood draw and describe why they have made their specific selection. Students will be required to cite textbook resources and/or regulatory documents to support their selection and recommendations.

Assessment Best Practices

30%-**Weekly or Bi-weekly online quizzes** - Students will be given online quizzes for which the answers to the questions will be immediately available. This can be done through, for example, the Socrative website ? www. socrative.com where the instructor can post quizzes, record quizzes that students have taken, and give students immediate feedback to the quizzes.The instructor will post daily questions/ topics relevant to the lecture material and students are required to participate via discussion threads posted on e-companion. They may also be required to post their own relevant questions and/topics that will require feedback from their classmates.

Attached Files

No Files attached

Form 6: Prerequisite, Corequisite, & Advisory Checklist and Worksheet (as per Matriculation Regulations)

Medical Laboratory Technician Program Courses
Prerequisite: MLT 1; Introduction to Clinical Laboratory Profession

SECTION 1 - CONTENT REVIEW: Check items 1-9 below. If any criterion is not met, the prerequisite will be disallowed.

Criterion	Met	Not Met
1. Faculty with appropriate expertise have been involved in the determination of the prerequisite, corequisite or advisory.	X	
2. The department in which the course is (will be) taught has considered course objectives in accordance with accreditation standards.	X	
3. Selection of this prerequisite, corequisite or advisory is based on tests, the type and number of examinations, and grading criteria.	X	
4. Selection of this prerequisite, corequisite or advisory is based on a detailed course syllabus and outline of record, related instructional materials and course format.	X	
5. The body of knowledge and/or skills which are necessary for success before and/or concurrent with enrollment have been specified in writing.	X	
6. The course materials presented in this prerequisite or corequisite have been reviewed and determined to teach knowledge or skills needed for success in the course requiring this prerequisite.	X	
7. The body of knowledge and/or skills necessary for success in the course have been matched with the knowledge and skills developed by the prerequisite, corequisite or advisory.	X	
8. The body of knowledge and/or skills taught in the prerequisite are not an instructional unit of the course requiring the prerequisite.	X	
9. Written documentation that steps 1 to 8 above have been taken is readily available in departmental files.	X	

SECTION II - ADDITIONAL LEVEL OF SCRUTINY

In addition to the affirmation of content review listed in section I, an additional level of scrutiny is also required. The level of scrutiny depends on which type of prerequisite is involved. There are six types and each is listed below. Please identify which one is being used to justify the proposed prerequisite. The additional level of scrutiny corresponding to each type of prerequisite is identified below.

	Type 1:	Standard Prerequisite
	Type 2:	Sequential within and across disciplines
	Type 3:	Course in communication or computational skills as prerequisite for course other than another skills course
x	Type 4:	Program prerequisites

	Type 5:	Health and Safety
	Type 6:	Recency and other measures of readiness (miscellaneous)

Prerequisite Worksheet

Note: While the MLT courses each deal with particular aspects of the discipline, they are part of the MLT program as a whole. This is why there is such an extensive prerequisite list, it applies to entrance skills that will be necessary for all courses in the MLT series (MLT 1 – 6) that lead up to their Practicum course (MLT 7). Please see specific courses for how the exit skills of the prereqs apply to each individual MLT course.

ENTRANCE SKILLS FOR: MLT 2, 3, 4, 5, 6

A)	Demonstrate knowledge of common chemical concepts such as atom, molecule, major types of bonding, ionization, oxidation, reduction and polarity
B)	Identify common organic functional groups
C)	Demonstrate knowledge of acidity, basicity and pH calculation
D)	Ability to perform basic lab skills such as solution preparation, dilution and titration
E)	Achieve a reasonably high degree of reproducibility, accuracy and precision in their lab results
F)	Apply dimensional analysis and demonstrate a working knowledge of metric units including those for mass (g), length (m), area (m^2), volume (L and m^3), energy (J), quantity (moles) and concentration (M) as well as metric prefixes and abbreviations such as kilo, micro, nano, etc
G)	Clearly focus on materials of a variety of sizes, thickness, and densities under a microscope.
H)	Identify tissues, organs, and body structures of the human body at a detailed level in actual specimens as well as in models and other representations.
I)	Correlate concepts of microscopic structure, macroscopic structure, and functions to the whole human body.
J)	Describe the various organs that make up the following systems: Nervous, Endocrine, Circulatory, Immune, Respiratory, Excretory, Digestive, Reproductive
K)	Describe an understanding of the major principles of cell biology including all major structures, functions, and physiological activities.
L)	Describe and distinguish the four classes of macromolecules, their respective subgroups, and their structural and functional characteristics.
M)	Demonstrate understanding of basic physiological processes including respiration, digestion, circulation, excretion, homeostasis, blood pressure, neuronal transduction, hormone action, sensory physiology, muscular contractions, specific and nonspecific immunity, reproduction
N)	Focus microscopes appropriately in selecting lighting direction and intensity, magnification, focus including use of the iris diaphragm, condenser, and filters, and effective ability to recognize structures viewed.
O)	Make reliable observations and record these observations systematically.
P)	Read and follow lab procedures
Q)	Understand and follow lab safety rules
R)	Applied critical thinking to transfer memorized information into conceptual understandings
S)	Read and understand written material at the college level

T)	Read and synthesze material from multiple sources to generate a clear coherent thesis
U)	Properly incorporate and document evidence in support of a thesis
V)	Recognize and critically assess unstated assumptions or inferences underlying written references or data sets, and to incorporate these in their analysis of a thesis.

EXIT SKILLS FOR: CHEM 12, ANATMY 1, PHYS 3, MCRBIO 1—all are required for admission to program and MLT 1

	Chemistry 12 related Exit Skills
1.	Understand how to handle chemicals safely
2.	Demonstrate knowledge of common chemical concepts such as atom, molecule, major types of bonding, ionization, oxidation, reduction and polarity
3.	Identify common organic functional groups
4.	Demonstrate knowledge of acidity, basicity and pH calculation
5.	Effectively use common chemistry equipment including pH-meter, laboratory balance, volumetric glassware, Bunsen burners etc.
6.	Ability to perform basic lab skills such as solution preparation, dilution and titration
7.	Achieve a reasonably high degree of reproducibility, accuracy and precision in their lab results
8.	Apply dimensional analysis and demonstrate a working knowledge of metric units including those for mass (g), length (m), area (m^2), volume (L and m^3), energy (J), quantity (moles) and concentration (M) as well as metric prefixes and abbreviations such as kilo, micro, nano, etc
	Anatomy 1 related Exit Skills
9.	Clearly focus on materials of a variety of sizes, thickness, and densities under a microscope.
10.	Identify tissues, organs, and body structures of the human body at a detailed level in actual specimens as well as in models and other representations.
11.	Describe the structures, interrelationships and general functions of major structures, organs, and organ systems of the human body.
12.	Correlate concepts of microscopic structure, macroscopic structure, and functions to the whole human body.
13.	Exhibit manual dexterity in dissection and prepare clear dissections.
14.	Use surface features of the human body as landmarks to identify and evaluate underlying structures.
15.	Describe the various organs that make up the following systems: Nervous, Endocrine, Circulatory, Immune, Respiratory, Excretory, Digestive, Reproductive
	Physiology 3 related Entrance Skills
16.	Describe an understanding of the major principles of cell biology including all major structures, functions, and physiological activities.
17.	Describe and distinguish the four classes of macromolecules, their respective subgroups, and their structural and functional characteristics.
18.	Understanding of basic physiological processes including respiration, digestion, circulation, excretion, homeostasis, blood pressure, neuronal transduction, hormone action, sensory physiology, muscular

	contractions, specific and nonspecific immunity, reproduction
	Microbiology 1 related Entrance Skills
19.	Focus microscopes appropriately in selecting lighting direction and intensity, magnification, focus including use of the iris diaphragm, condenser, and filters, and effective ability to recognize structures viewed.
20.	Make reliable observations and record these observations systematically.
21.	Understanding and applying aseptic technique as well as exhibit manual dexterity in aseptic technique
22.	Demonstrating proper handwashing techniques
23.	Describe and distinguish various viruses, prokaryotes, and eukaryotes in terms of their medical importance in Microbiology: Domain Bacteria, Domain Archaea, Domain Eukarya, Kingdom Protista, Kingdom Fungi, Kingdom Animalia (as it relates to helminths)
	Skills obtained from Chem 12, Anat 1, Phys 3, and Micro 1
24.	Read and follow lab procedures
25.	Understand and follow lab safety rules
26.	Applied critical thinking to transfer memorized information into conceptual understandings
27.	Read and understand written material at the college level
28.	Read and synthesis material from multiple sources to generate a clear coherent thesis
29.	Properly incorporate and document evidence in support of a thesis
30.	Recognize and critically assess unstated assumptions or inferences underlying written references or data sets, and to incorporate these in their analysis of a thesis.

Please note that for MLT 1 Entrance Skills A – F relate to the Chemistry 12 Prerequisite. Entrance Skills G - J relate to the Anatomy 1 Prerequisite. Entrance Skills K – M relates to the Physiology 3 Prerequisite. Entrance Skills N – 0 relate to the Microbiology 1 Prerequisite. Entrance Skills P – V relate to all Prerequisite courses.

	ENTRANCE SKILLS FOR MLT 2																						
EXIT SKILLS FOR Chemistry 12, Anatomy 1, Physiology 3, Microbiology 1		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
	1																						
	2	C 1 2																					
	3		C 1 2																				
	4			C 1 2																			
	5																						
	6				C 1 2																		
	7					C 1 2																	
	8						An a 1																
	9							An a 1															
	10								An a 1														
	11																						

	12									Ana 1													
	13																						
	14																						
	15										Ana 1												
	16											Phy 3											
	17												Phy 3										
	18													Phy 3									
	19														Mb 1								
	20															Mb 1							
	21																						
	22																						
	23																						
	24																X						
	25																	X					
	26																		X				
	27																			X			
	28																				X		
	29																					X	
	30																						X

Santa Monica College
New SMC Course
Expanded Course Outline for MLT 7 - MLT Clinical Practicum

Course Cover	
Discipline	MLT-Medical Laboratory Technician
Course Number	7
Full Course Title	MLT Clinical Practicum
Catalog Course Description	Emphasis is on providing students with entry-level clinical laboratory practice and experience in the different clinical laboratory departments. Daily activities will include supervised pre-analytical, analytical, and post-analytical evaluation of patient specimens in an affiliated clinical laboratory. The laboratory departments include hematology, coagulation, urinalysis, body fluids, microbiology, chemistry, immunology, and immunohematology. An assessment at the end of the clinical training will evaluate the students on their entry-level clinical laboratory skills.
Proposal Information	
Proposed Start	Year: 2014 Semester: Spring
Proposed for Distance Ed	Yes
Proposed for Global Citizenship	No
Course Unit/Hours	
Variable Hour Exist	NO
Credit Hours	Min: 10.00
Weekly Lecture Hours	Min:
Weekly Laboratory Hours	Min: 40.00 (Sem: 720)
Weekly Arranged Hours	Min:
Total Semester Instructional Hours	720.00
Repeatability	May be repeated 0 time(s)
Grading Methods	Letter Grade or P/NP
Minimum Qualification	
Minimum	Other

Qualifications:	
Program Applicability	
Designation	Credit - Degree Applicable
Proposed For	**AS Degree** -Medical Laboratory Technician
Course Objectives	
Upon satisfactory completion of the course, students will be able to:	
1. Perform pre-analytical assessment of clinical specimens to ensure quality of results in a clinical laboratory setting.	
2. Perform specimen processing such as blood specimen centrifugation, aliquoting samples, dilution of samples, and distribution of samples to the appropriate departments.	
3. Perform Quality Control (QC) procedures to assess and evaluate the validity of clinical testing and results.	
4. Perform troubleshooting procedures as required by each department to ensure that the pre-analytical, analytical, and post-analytical tasks are performed correctly.	
5. Observe and practice safety regulations in the clinical laboratory by wearing the appropriate personal protective equipment	
6. Determine the suitability of specimens that are submitted to each department for analytical testing by applying the pre-analytical evaluation criteria of specimen rejection and acceptance	
Course Content	
20%	Pre-Analytical Procedures: Specimen Processing and Allocation
20%	Analytical Procedures: Reagents, Quality Control, and Patient Specimen assays
20%	Post- Analytical Procedures: Patient Results Reporting, Critical Values, and Troubleshooting
10%	Professionalism
10%	Laboratory Instrumentation: Assay Principles, Maintenance, and Troubleshooting
10%	Quality Assurance Procedures
10%	Entry-level Competencies Evaluation
Total: 100%	
Lab Content	
20%	Pre-analytical, Analytical, Post-Analytical Evaluation of Patient Specimens
20%	Professionalism, Safety, and Infection Control
20%	Instrumentation Use Competency: Maintenance, Use, and Troubleshooting practices
20%	State and Federal Regulatory Standards Compliance
20%	Laboratory Values/ Parameters Competence
Total: 100%	

Methods of Evaluation	
Methods	• 75% - Final Performance Clinical preceptor evaluation • 25% - Final exam Comprehensive Final Exam • 100% - Total
Methods of Presentation	
Opt Heading	
Methods	Observation and Demonstration Other Work Experience (internship)
Other Methods	
Appropriate Textbooks	
Textbooks such as the following are appropriate:	
Formatting Style	APA
Assignments	
Sample Assignment	
Case studies: Microbiology a. Identify the pathogenic organism that is associated with presented clinical presentation. b. Rule out the possibility of similar pathogens by determining the microscopic, macroscopic, and biochemical properties of the associated pathogens. c. Determine the antibiotic susceptibility pattern of the pathogenic organism.	
Library	
List of suggested materials has been given to librarian?	No
Library has adequate materials to support course?	No
Student Learning Outcomes	
1. Perform analysis on clinical specimens that are categorized as low to moderate complexity in all laboratory departments.	
2. Perform tasks as a medical laboratory technician at an entry-level competency.	
3. Abide by all the professionalism standards as set forth by the institution that is conducting the clinical training.	
Transfer/General Ed	

IGETC Area:	
Does NOT satisfy any area of IGETC:	
CSU GE Area:	
Does NOT satisfy any area of CSU GE:	
SMC GE Area:	
Does NOT satisfy any area of SMC GE:	
Distance Ed Distance Education Application	
Delivery Methods	Other (explain)
If other is selected, describe here	The clinical training of the students are conducted in clinical laboratories that are affiliated with the Santa Monica College Medical Laboratory Technician program. The students will conduct their training at the facilities for 8 h/ day or 40 h/ week period. The cumulative time required by the California Dept of Public Health and Laboratory Field Services for the MLT clinical training is a total of 760 h to cover all of the disciplines required. The SMC MLT program has designed the training modules, checklists, assignments, and exams. These learning resources will be provided to the clinical laboratory preceptors who will administer and supervise student training on-site.
Distance Education Quality	
Quality Assurance	Course objectives have not changed Course content has not changed Method of instruction meets the same standard of course quality Outside assignments meet the same standard of course quality Serves comparable number of students per section as a traditional course in the same department Required texts meet the same standard of course quality
Additional Considerations	Evaluation methods are in place to produce an annual report to the Board of Trustee on activity in offering this course or section following the guidelines to Title 5 Section 55317 (see attachment) and to review the impact of distance education on this program through the program review process specified in accreditation standard 2B.2. Adequate technology resources exist to support this course/section Library resources are accessible to students Specific expectations are set for students with respect to a minimum amount of time per week for student and homework assignments Adequately fulfills “effective contact between faculty member and student” required by Title 5. Will not affect existing or potential articulation with other colleges Special needs (i.e., texts, materials, etc.) are reasonable Complies with current access guidelines for students with disabilities

Guidelines and Questions for Curriculum Approval of a Distance Education Course Student Interactions	
Student-Instructor Interaction	Although the student will be in clinical training during the majority of their time, the didactic instructor will be available for the following tasks: a. visit the student in the sites at least twice during their internship. b. be available for email, phone conferences, or in person conferences to discuss the progress of the student in clinical training at least twice a week for specific time blocks.
Student-Student Interaction	There will be a formal e-companion learning module set up so that students can participate in threaded discussions online to discuss their training experiences at various clinical sites. There will also be opportunities to discuss and solve case studies as a group to continue the online learning format.
Student-Content Interaction	E-companion will be set up to include board exam reviews, case studies, and various homework learning modules to encourage the students to review for their upcoming national board exams. Students will be required to spend at least 2 hours per week on the e-companion website.

Online class activities that promote class interaction and engagement	Brief Description	Percentage of Online Course Hours
Discussion Boards	The instructor will post topics relevant to the following: a. clinical training experience where student can constructively comment on their training at a facility. This will help the instructor and student evaluate and compare training variables b. networking among students - discussion of the possibility of employment opportunities. c. case study bank where the students and/or instructor can post relevant case studies. Students can post case studies obtained from their clinical training site (without PHI or private health information) and invite their classmates to contribute with relevant commentary to solve a case.	10%
Study and/or Review Sessions	Students will be provided with opportunities to review their didactic content from previous semesters, take practice exams online, and solve clinical case studies provided. Practice exams will be obtained with permission from various companies including the American Society of Clinical Pathologists (ASCP) review materials.	30%

Describe how content will be organized and delivered in the interest of achieving course

outcomes/objectives (e.g. what are the methods of instruction being used, technologies used, approximate time schedule, necessary instructional materials.)
Each specific discipline will have a comprehensive content review on e-companion to help students review for their national board exam. The e-companion module will be set up with powerpoint lectures, homework assignments, critical thinking case studies, and relevant for a discussion thread. Students should spend at least 2 hours per week on the modules specific to the discipline (clinical chemistry, microbiology, etc) for which they are training in order for the learning exercise to be meaningful and applicable to their training experience.
Describe the technical qualifications an instructor would need and the support that might be necessary for this course to be delivered at a distance (e.g. the college?s existing technology, CCCConfer certification, other specialized instructor training, support personnel, materials and resources, technical support, etc.)
The instructor would need to be trained to use and be supported by the college?s existing technology such as e-companion.
Describe any student support services one might want or need to integrate into the online classroom for this course (e.g. links to counseling, financial aid, bookstore, library, etc.)
Students will need to have access to online resources provided by the main textbook that we will be using and this needs to be integrated in the online materials used by the students. They will also be given access to board exam review materials with permission from providers such as the American Society of Clinical Pathology (ASCP). In addition, they will have access to the MTS training software as an additional review for the board exam.
Describe how the design of the course will ensure access for students with disabilities including compliance with the regulations of Section 508 of the Rehabilitation Act.
For any videos and demonstrations used online, captions will be provided to ensure access for all students.
Using one of the course objectives, describe an online lesson/activity that might be used in the course to facilitate student learning of that objective. Be sure the sample lesson/activity includes reference to the use of online teaching tools (such as drop box or threaded discussion, or multimedia such as Articulate, Flash, Jing, etc.).
Course objective: Apply the specimen criteria of acceptance and rejection to determine the suitability of specimens for clinical analysis. Activity: The instructor will post relevant topics, cases, and/or situations pertaining to the subject of specimen evaluation for clinical testing. Students will be required to post responses via a threaded discussion format.
Assessment Best Practices
30%-**Weekly Quizzes** - Students will be given online quizzes for which the answers to the questions will be immediately available. This can be done through, for example, the Socrative website ? www. socrative.com where the instructor can post quizzes, record quizzes that students have taken, and give students immediate feedback to the quizzes. Timed online quizzes bi-weekly quizzes will be given to students and immediate feedback will be available. These online quizzes are designed so that students are given

access to the site by the instructor at specific times during the week. In addition, immediate feedback is available and quiz scores are recorded on the website for the instructor. Students may only take the quizzes once. We will be using the student learning outcomes as a guide to assess student learning via online interactions. Quiz questions will cover specific SLO topics to determine whether or not students are able to retain and apply the required information needed to be successful in the course.

Attached Files

No Files attached

Santa Monica College
Update (NEW/MODIFIED DE)
Expanded Course Outline for MLT 2 - Hematology, Coagulation, Urine and Body Fluid Analysis

Course Cover	
Discipline	MLT-Medical Laboratory Technician
Course Number	2
Full Course Title	Hematology, Coagulation, Urine and Body Fluid Analysis
Catalog Course Description	This course will emphasize the theory and practice of manual and automated procedures in hematology and coagulation and the relationship of these procedures to the diagnosis of disease. This course will also examine the physical, chemical, and microscopic properties of urine and other body fluids and correlate selected chemical and microscopic constituents of urine and other body fluids with various disease states. Case studies and online modules will be used to integrate laboratory tests with clinical scenarios to emphasize their clinical significance.
Rationale	
Rationale	To convert the course into a hybrid course.
Proposal Information	
Proposed Start	Year: 2010 Semester: Fall
Proposed for Distance Ed	Yes
Proposed for Global Citizenship	No
Course Unit/Hours	
Variable Hour Exist	NO
Credit Hours	Min: 5.00
Weekly Lecture Hours	Min: 3.00 (Sem: 54)
Weekly Laboratory Hours	Min: 6.00 (Sem: 108)
Weekly Arranged Hours	Min:
Total Semester Instructional Hours	162.00
Load Factor	1.00
Load Factor	This is consistent with Life Science Department courses with both a

Rationale	lecture and a lab component.
Repeatability	May be repeated 0 time(s)
Grading Methods	Letter Grade or P/NP
Minimum Qualification	
Minimum Qualifications:	Other
Program Applicability	
Designation	Credit - Degree Applicable
Proposed For	**AS Degree** -Medical Lab Technician
Course Objectives	
Upon satisfactory completion of the course, students will be able to:	
Regarding Hematology, upon completion of the lecture portion of this course the student shall be able to:	
1. Discuss hematopoiesis.	
2. Discuss the proper method of blood collection.	
3. Review basic microscopic and spectroscopic methodologies.	
4. Define cellular structure in relationship to morphology seen with Wright and Giemsa staining.	
5. Identify when shown peripheral blood smears, Kodachrome, laserdisc or computer slides: -All stages of WBC, RBC, and platelet maturation. -Normal and abnormal RBC and WBC morphology and RBC and WBC inclusions. -Cells found in normal peripheral smears versus those found in abnormal smears.	
6. Discuss hemoglobin synthesis, structure, function, and metabolism.	
7. Categorize the more common anemias by pathophysiology, utilizing pertinent laboratory data.	
8. State the principle, methodology and normal results for all routine hematology tests.	
9. Classify leukocyte abnormalities presented as to whether reactive, malignant, hereditary or acquired. Use the FAB nomenclature to classify leukemias.	
10. Discuss universal precautions and safety.	
11. Discuss quality control, quality assurance in the hematology laboratory.	
12. Discuss basic theories of hemostasis including: -Interrelationship of the three systems in the hemostatic mechanism. -Blood coagulation factors. -Cascade theory. -Fibrinolytic mechanism. -Regulatory mechanisms.	
13. Discuss routine and special laboratory examination of the hemostatic mechanism.	
14. Discuss qualitative and quantitative platelet disorders.	
15. Discuss antithrombic therapy as it relates to laboratory procedures.	
16. Discuss hemostasis deficiencies, distinguishing between hereditary and acquired disorders.	
17. Evaluate given clinical and laboratory data and determine cause of defects in the hemostatic mechanism.	

18. Discuss the principles of instrumentation in the hematology and coagulation laboratory.
19. Associate normal peripheral blood and common pathological blood states with histograms and scatter grams.
Regarding Coagulation, upon completion of the laboratory portion of this course the student shall be able to:
1. Demonstrate proper use of the various anticoagulants required in the clinical laboratory.
2. Perform the procedures used for the collection of blood samples, properly label samples, and determine specimen acceptability for hematology and coagulation procedures.
3. Select appropriate test protocol from the hematology and coagulation lab manual.
4. Demonstrate working knowledge of and operate the equipment required in a hematology and coagulation laboratory including pipettes, microscopes, centrifuges, automated cell counters, semi-automated and automated optical clot detection equipment.
5. Perform appropriate preventative maintenance as required, identify basic malfunctions, and perform preliminary problem solving on analyzers.
6. Demonstrate proficiency in the techniques of the procedures listed in the outline, properly recording and reporting results, including critical values, quality control, recognizing inconsistencies that need investigation before reporting results.
7. Associate common pathological states with common cytochemical stains.
8. Associate common pathological states with histograms.
9. Perform all procedures will regard to prescribed safety protocol.
10. Apply the laboratory data to the stated case studies and discuss the implications of these cases to the study of hematology.
11. Demonstrate ethical and professional responsibility in the performance of all procedures.
Regarding Body Fluids, upon completion of the lecture portion of this course the student shall be able to:
1. Identify the forces involved in fluid formation in the body and correlate the body cavity with containing fluid.
2. Describe the basic physiology and anatomy of the kidney and relate this function to normal and abnormal test results.
3. Describe disease states of the renal system as to etiology, clinical symptoms and expected laboratory results.
4. Relate the appropriate method of collection and preservation of urine specimens for all urinalysis testing. Perform with efficiency and speed routine urinalysis and tests for tubular and glomerular function.
5. List reagents and techniques used to identify amino acids, carbohydrates other than glucose, mucopolysaccarides, mucolipids, amino acids, and proteins.
Regarding Body Fluids, upon completion of the laboratory portion of this course the student shall be able to:

1. Correctly apply quality control procedures to perform testing on body fluids.	
2. Correctly prepare specimens for cell morphology examination and describe and recognize various cell types that occur in body fluids.	
3. Relate the origin, composition, the methods of analysis, the diagnostic importance of test results and explain the specific methodology used for each of the following body fluids: Amniotic Fluid Cerebrospinal Fluid Synovial Fluid Seminal Serous	
Course Content	
50%	Hematology
20%	Coagulation
20%	Urinalysis
10%	Body Fluid Analysis
Total: 100%	
Lab Content	
30%	CBC Differentials
10%	Lab Safety
20%	Manual Methodologies in Hematology
30%	Automated Methodologies in Hematology, Coagulation, Urinalysis and Body Fluids
10%	Instrumentation and Quality Control
Total: 100%	
Methods of Evaluation	
Methods	• 30% - Final exam • 45% - Lab Reports Laboratory Assignments Lab Practical - Practicum style tests to show working knowledge of procedural tests • 5% - Other Core Abilities - lab skills/technique performance as assessed by instructor throughout course • 20% - Quizzes • 100% - Total
Methods of Presentation	
Opt Heading	
Methods	Lab Lecture and Discussion
Other Methods	Demonstration Case Studies Self Studies Online modules either at http://www.medtraining.org/ or on eCompanion
Appropriate Textbooks	
Textbooks such as the following are appropriate:	

Formatting Style	APA

Textbooks

1. Bernadette F. Rodak, George A. Fritsma, & Kathryn Doig. *Hematology: Clinical Principles and Applications*, 3rd ed. -, 2007, ISBN: 9781416030065.

2. Susan King Strasinger, Marjorie Schaub Di Lorenzo. *Urinalysis And Body Fluids (Paperback)* , ed. -, 2008, ISBN: 9780803616974.

1. Online MTS (Medical Training Solutions) modules at http://www.medtraining.org/ Provided by Medical Training Solutions, Inc., PO Box 17349, Seattle, WA 98127, site licenses will be purchased for students to be utilized either via eCompanion or on-campus in the Biology computer lab

Assignments

Sample Assignment

1. Online module: "Peripheral Blood" Student will access module content which includes images, video and text through http://www.medtraining.org/ and then complete the online module quizzes. Scores will then be recorded and transmitted to instructor. Upon successful completion of "Peripheral Blood" module, the student will be able to:
    1. Describe the steps necessary for the preparation of a Wright-stained peripheral blood smear and its proper microscopic evaluation.
    2. Identify the sequence of cell types encountered during normal maturation of myeloid, erythroid, and megakaryocytic cells in the marrow.
    3. Recognize and name the normal and abnormal forms of neutrophils, erythrocytes, lymphocytes, macrophages, and platelets using proper medical terminology.
    4. Correlate single morphologic abnormalities seen in any of the above cell lineages to one or more
    5. specific disease states.
    6. Integrate combinations of morphologic abnormalities involving one or more cell lineages to suggest a diagnosis of a disease state.
2. Online module: "Urinalysis" Student will access module content which includes images, video and text through http://www.medtraining.org/ and then complete the online module quizzes. Scores will then be recorded and transmitted to instructor. Upon successful completion of "Urinalysis" module, the student will be able to:
    1. Describe the anatomic structures involved in urine formation.
    2. Describe the three parts of a complete urinalysis.
    3. Describe three methods of enhancing the visualization of urinary sediment structures.
    4. Identify and differentiate the common cell types found in urinary sediment.
    5. Enumerate red blood cells and white blood cells in unstained urinary sediment.
    6. Identify the types of casts seen in urinary sediment and state the clinical significance associated with
    7. each finding.

8. Differentiate between crystals found in normal urine and crystals associated with clinical disease.
9. Describe typical urinary sediment findings and key biochemical findings associated with selected renal disorders.

Pre/Corequisites & Advisories

Prerequisite
MLT 1

Library

List of suggested materials has been given to librarian?	Yes
Library has adequate materials to support course?	Yes

Additional Comments/Information

Librarian Approval:
Carol Womack
Date:
10/25/2010

Student Learning Outcomes

1. Evaluate the suitability of blood specimens collected and submitted to the laboratory for hematology and coagulation analyses according to the specific acceptance and rejection criteria.
2. Correlate the results observed from a complete blood count (CBC) panel with associated diseases
3. Describe the mechanisms and principles of common automated instruments used in the hematology and coagulation department
4. Describe the composition, formation, and function of selected body fluids discussed in class.
5. Evaluate the suitability of the body fluids collected and submitted to the laboratory for analysis according to the specific acceptance and rejection criteria
6. Describe the clinical significance of the abnormal and normal test results obtained in a urinalysis assay

Transfer/General Ed

IGETC Area:

Does NOT satisfy any area of IGETC:

CSU GE Area:

Does NOT satisfy any area of CSU GE:

SMC GE Area:

Does NOT satisfy any area of SMC GE:	
Distance Ed Distance Education Application	
Delivery Methods	Online Hybrid (51% or more of course is held on-campus)
Need/Justification	
Distance Education Quality	
Quality Assurance	Course objectives have not changed Course content has not changed Method of instruction meets the same standard of course quality Outside assignments meet the same standard of course quality Serves comparable number of students per section as a traditional course in the same department Required texts meet the same standard of course quality
Additional Considerations	Evaluation methods are in place to produce an annual report to the Board of Trustee on activity in offering this course or section following the guidelines to Title 5 Section 55317 (see attachment) and to review the impact of distance education on this program through the program review process specified in accreditation standard 2B.2. Adequate technology resources exist to support this course/section Library resources are accessible to students Specific expectations are set for students with respect to a minimum amount of time per week for student and homework assignments Adequately fulfills "effective contact between faculty member and student" required by Title 5. Will not affect existing or potential articulation with other colleges Special needs (i.e., texts, materials, etc.) are reasonable Complies with current access guidelines for students with disabilities
Guidelines and Questions for Curriculum Approval of a Distance Education Course Student Interactions	
Student-Instructor Interaction	The interaction between students and instructor online will be via email, discussion threads, and powerpoint lectures with designated assignments and objectives will be available on e-companion. The instructor will be available at specific block times during the week (3 days per week, 1 hours per session) for the students to interact and discuss concerns and questions with the instructor. The instructor will be available by email at all times and have additional office hours for in-person/ on-campus meetings.
Student-Student Interaction	Students will be required to interact online via discussion thread and facilitated group email discussions at least 3 times per week at their own time. They will be required to submit questions, respond to relevant questions posted by the instructor and/or other students, and comment on topics and ideas presented. These interactions will

	be tracked by the instructor to document their online participation in the discussions.
Student-Content Interaction	The students will be able to access their powerpoint lecture materials as well as objectives and assignments for the course. They will also be required to access the socrative website via www.socrative.com to take their online quizzes for which immediate feedback is available. Access to the website is by instructor permission only and quizzes are timed. There will be weekly quizzes for this course. All exams will be administered on ground. Each chapter lecture module will have a homework assessment included that has an estimated time of 45 minutes to an hour to complete. They will have at least 4 such modules during the week.

Online class activities that promote class interaction and engagement	**Brief Description**	**Percentage of Online Course Hours**
Study and/or Review Sessions	Students will be given an online module for lectures and an accompanying study guide or assignment questions for which they can use their online lecture modules and/or textbook to answer the questions. These will be submitted to the instructor online via email for evaluation. In addition, students will be required to submit questions to the discussion thread at least 3 times a week and submit answers to questions posted by the instructor at least three times a week.	29%
Project Presentation	Students will be given group case studies for which they will be required to work in assigned groups. They will submit progress reports for their online group activities to discuss answers to the case study questions as well as the final diagnosis. They will be required to submit reports of their online interactions as well as an evaluation of each member of their team. There will be criteria on peer evaluation such as attendance of all live and/or online meetings, and etc. Students will present their case studies on ground.	20%

Describe how content will be organized and delivered in the interest of achieving course outcomes/objectives (e.g. what are the methods of instruction being used, technologies used, approximate time schedule, necessary instructional materials.)

The content will be organized according to the textbook chapter presentation and references. The delivery of the content will be by the following methods: online lecture

and assignment modules. Lectures will be presented by powerpoint and assignments will be posted per lecture module. In addition, students will also take a short online quiz following the lecture module. These will take approximately 45 minutes per chapter module. There will be a minimum of at least 4 such exercises per week. Technologies required would be student access to e-companion.
Describe the technical qualifications an instructor would need and the support that might be necessary for this course to be delivered at a distance (e.g. the college's existing technology, CCCConfer certification, other specialized instructor training, support personnel, materials and resources, technical support, etc.)
The instructor would need to be trained to use and be supported by the college's existing technology such as e-companion.
Describe any student support services one might want or need to integrate into the online classroom for this course (e.g. links to counseling, financial aid, bookstore, library, etc.)
Students will need to have access to online resources provided by the main textbook that we will be using and this needs to be integrated in the online materials used by the students.
Describe how the design of the course will ensure access for students with disabilities including compliance with the regulations of Section 508 of the Rehabilitation Act.
For any videos and demonstrations used online, captions will be provided to ensure access for all students.
Using one of the course objectives, describe an online lesson/activity that might be used in the course to facilitate student learning of that objective. Be sure the sample lesson/activity includes reference to the use of online teaching tools (such as drop box or threaded discussion, or multimedia such as Articulate, Flash, Jing, etc.).
Course objective: Identify the abnormal and normal diagnostic parameters indicated in a case study with an attached CBC. Discuss the findings and determine a possible diagnosis. Online lesson/activity used in the course: We will use a threaded discussion to facilitate learning and mastery of this objective. Students will be given case studies in which they will need to use a threaded discussion format to piece together, as a group, diagnostic information and come up with a diagnosis. They will be given the appropriate criteria and resources to answer the questions. Also, they will be given the opportunity to ask questions, discuss, and check their answers after the discussion period
Attached Files
No Files attached

Santa Monica College
Update (NEW/MODIFIED DE)
Expanded Course Outline for MLT 3 - Blood Banking and Immunology

Course Cover	
Discipline	MLT-Medical Laboratory Technician
Course Number	3
Full Course Title	Blood Banking and Immunology
Catalog Course Description	This course introduces the theory of antigen-antibody reactions as it relates to blood grouping and typing, antibody detection and compatibility testing. Also discussed are blood donor screening and component preparations, immunologically related diseases, transplantation, and principles of antigen-antibody based tests. This course will utilize computer technology to enhance student learning.
Rationale	
Rationale	As a program, we have decided to change the MLT courses to hybrid courses for the following reasons which we believe will benefit our SMC students: 1. It will offer them the chance to complete the program within 2 years. We will be able to offer 2 courses per semester instead of 1 and possibly maintain our Sunday on-ground lab component. Most of our students are already working professionals in the clinical laboratory field and are interested in moving up the career ladder. They are all motivated to complete in a timely manner . The hybrid courses will not be less rigorous than they would be on ground as our curriculum is modeled after nationally accredited programs that also offer hybrid MLT courses - since we are seeking national accreditation for our MLT program. This type of accreditation has specific requirements on curriculum development to maintain consistency among different MLT programs nationwide. 2. Our clinical affiliates, specifically UCLA, are anticipating to train them in their sites as soon as possible. They are ready to take students.
Proposal Information	
Proposed Start	Year: 2013 Semester: Spring
Proposed for Distance Ed	Yes
Proposed for Global Citizenship	No
Course Unit/Hours	
Variable Hour Exist	NO

Credit Hours	Min: 5.00
Weekly Lecture Hours	Min: 3.00 (Sem: 54)
Weekly Laboratory Hours	Min: 6.00 (Sem: 108)
Weekly Arranged Hours	Min:
Total Semester Instructional Hours	162.00
Load Factor	1.00
Load Factor Rationale	This is consistent with Life Science Department courses with both a lecture and a lab component.
Repeatability	May be repeated 0 time(s)
Grading Methods	Letter Grade or P/NP
Minimum Qualification	
Minimum Qualifications:	Other
Program Applicability	
Designation	Credit - Degree Applicable
Proposed For	**AS Degree** -Medical Laboratory Technician **Certificate of Achievement** -Medical Laboratory Technician
Course Objectives	
Upon satisfactory completion of the course, students will be able to:	
1. Relate the physical and biochemical characteristics of the immunoglobulins.	
2. Discuss basic genetics and apply them to the necessary areas of blood banking.	
3. Discuss the rationale behind the utilization of serological reactions in the diagnoses of disease.	
4. Outline the principle behind the detection of antigen-antibody reactions in the following methodologies, antigen or antibody binding tests, fluid precipitation, gel precipitation, agglutination reactions, complement fixation and neutralization.	
5. Describe the ABO, Rh and other blood group antigens, relating methods for detecting and their clinical significance.	
6. Discuss the function of blood and component transfusion, the indications and contraindications for utilization and the laboratories role in preparation.	
7. Describe in detail the procedures performed in a clinical blood bank and serology laboratory.	
8. Discuss clinical conditions associated with Immunohematology.	
9. Demonstrate general knowledge of the wide variety and far reaching consequences of diseases of the immune system.	

10. Relate quality assurance regulation, safety and regulatory issues in Immunohematology.
11. Describe HLA and its nomenclature, genetics, role in paternity testing and histocompatibility typing.
12. Correctly obtain and process specimens to be used for immunohematology.
13. Prepare red cell suspensions for use in blood bank procedures.
14. Recognize and correctly grade hemagglutination, hemolysis and latex agglutination reactions. Perform serial dilution techniques. Titer positive antibody screens when necessary within one dilution of instructor.
15. Recognize importance of antigen-antibody ratios in immunological reactions.
16. Perform and interpret direct and indirect antiglobulin tests with 100% accuracy while recognizing and avoiding common pitfalls of technique. Utilize Coombs control cells and interpret correctly.
17. Perform and interpret routine ABO forward and reverse grouping and Rh(o) (D)/weak D(Du) testing with 100% accuracy.
18. Perform and antibody screen using commercially prepared cells with 80% accuracy.
19. Perform a routine cross match with 100% accuracy and determine if the unit can be safely transfused realizing when the pathologist should be consulted.
20. State the importance of quality assurance programs for blood banking and serology and perform routine procedures. Describe elements of a quality control program.
21. State the principle behind and make decisions when to use variety of elution and absorption techniques in blood banking. Evaluate elution and absorption techniques.
22. Perform and interpret routine cell panel for detection of red cell antibodies and be familiar with special techniques employed in antibody identification.
23. Perform and evaluate other (than ABO) blood group antigen typing (including additional Rh antigens).
24. Recognize discrepancies in ABO grouping and utilize basic problem solving skills to resolve these discrepancies.
25. Recognize incompatible results on cross matching procedures. Perform preliminary problem solving techniques to determine if said units could safely transfused. Follow SOP for dealing with incompatibilities.
26. Select appropriate blood group and type for a variety of blood components for transfusion therapy in routine and non-routine situations. State AABB appropriate handling and storage for the variety of blood products.
27. Determine the acceptability of blood donor, be familiar with processing of blood, appropriate testing and labelling once drawn.
28. Using DAT, ABO, Rh, and elution studies, perform cord blood workups and identify potential causes of Hemolytic Disease of the Newborn (HDN).
29. Perform and evaluate testing for administration of Rhogam.
30. Perform the functions of the clinical laboratory in the investigation transfusion complications.
31. State and follow established procedure for emergency transfusions.

32. Complete and maintain required blood banking records for accreditation, AABB inspection, federal guidelines.
33. Perform and interpret RPR testing for syphilis.
34. Describe routine procedures used in syphilis.
35. Outline procedures and given results interpret serological testing for hepatitis.
36. Perform and interpret rapid strep serological tests, be familiar with procedures for Antistreptolysin O titers, rapid cold agglutinin detection and cold agglutinin titers.
37. Be familiar with testing for Bacterial Agglutinations.
38. Perform and interpret serological tests for C-reactive protein, infectious mononucleosis, and rheumatoid arthritis.
39. Perform and interpret serological testing for pregnancy.
40. Outline procedures and given results interpret results from ANA testing.
41. Discuss antibodies detected in a variety of autoimmune diseases.
42. Perform and interpret fetal screening for fetal-maternal bleed. Calculate vials of Rhogam necessary to administer.
43. Demonstrate familiarity with serological rubella testing.
44. Articulate currently available methods for HIV testing.

Course Content	
10%	ABO Rh blood groups
10%	Antigen typing and antibody identification
10%	Serology
10%	Blood donor selection and testing
10%	Transfusion therapy and reactions
10%	Immune system overview (cells, basic functions, biochemical characteristics)
10%	Precipitation and agglutination techniques
10%	Cross matching, special tests and immunological reactions
10%	Immuno disorders and diseases
10%	Screening and testing methods (fetal specific as well as for various diseases)
Total: 100%	

Lab Content	
30%	ABO and Antibody ID
20%	Manual Methodologies in Immunohematology
20%	Specimen Acceptance and Rejection
10%	Automated Technologies
10%	Quality Control
10%	Instrument Maintenance and Repair
Total: 100%	

Methods of Evaluation	
Methods	• 30% - Final exam • 45% - Lab Reports Laboratory Assignments Lab Practical - Practicum style tests to show working knowledge of procedural tests • 5% - Other Core Abilities - lab skills/technique performance as assessed by instructor throughout course • 20% - Quizzes • 100% - Total

Methods of Presentation	
Methods	Lab Lecture and Discussion
Other Methods	Demonstration Case Studies Online modules either at http://www.medtraining.org/ or on eCompanion

Appropriate Textbooks	
Textbooks such as the following are appropriate:	
Formatting Style	APA
Textbooks	
1. Kathy D. Blaney, MS, BB(ASCP)SBB and Paula R. Howard, MS, MT(ASCP)SBB. *Basic & Applied Concepts of Immunohematology*, 2nd ed. -, 2008, ISBN: 978-0-323-048.	
Other	
1. Online MTS (Medical Training Solutions) modules at http://www.medtraining.org/ Provided by Medical Training Solutions, Inc., PO Box 17349, Seattle, WA 98127, site licenses will be purchased for students to be utilized either via eCompanion or on-campus in the Biology computer lab	

Assignments

Sample Assignment

1. Online module: "Ordering and Administering" Student will access module content which includes images, video and text through http://www.medtraining.org/ and then complete the online module quizzes. Scores will then be recorded and transmitted to instructor. Upon successful completion of "Ordering and Administering" module, the student will be able to:
    1. List the steps required to correctly order blood products for transfusion.
    2. Identify basic blood products and explain indications for use
    3. Define Zero Tolerance Policy of patient identification during transfusion administration
    4. List the steps required to complete a bedside check of a patient receiving a blood transfusion
    5. Identify the steps to perform an evaluation of a blood product before transfusion.

6. Recognize signs and symptoms of an adverse event during and following blood product administration
7. Describe actions to perform if a transfusion reaction occurs

2. Case Study

Working in groups of 3 to 4, students will be presented with a case study that describes a brief medical scenario. Following the scenario will be related questions that the students will answer and then present the case study to the class. The following is an example of a possible case study.

A 22-year-old man with a history of allergic reactions to peanuts was admitted to our hospital in a coma. After inadvertently ingesting satay sauce, which contains peanuts, during a Chinese meal, he had become unwell and had had a cardiorespiratory arrest that resulted in cerebral anoxia, coma, and brain death. A high level of peanut-specific IgE was detected in his serum ... multiple organs were subsequently procured. The donor's HLA phenotype was A1,24;B8,44;DRB1*03,13.

...the donor's liver and right kidney were given in transplantation to a 35-year-old man, and the left kidney and pancreas were given to a 27-year-old woman. The man (HLA phenotype, A2,19;B12,- ;DRB1*07,13) had end-stage renal failure.... The woman (HLA phenotype, A1,24;B8,44;DRB1*03,04) had chronic renal failure....

Both transplant recipients received immunosuppressive induction therapy with muromonab-CD3 (OKT3) and corticosteroids, azathioprine, and cyclosporine. Neither had ever had any allergy to peanuts. Three months after transplantation, the recipient of the liver-kidney transplant reported a skin rash and laryngeal dyspnea after eating peanuts. Allergy to peanuts was diagnosed on the basis of the clinical findings; the absence of specific IgE antibodies before transplantation, their presence at the time the symptoms appeared, and their decline thereafter; and a positive basophil degranulation test.

Questions

1. What does HLA stand for? What is an HLA phenotype?
2. How does HLA relate to MHC in immune physiology?
3. Why is it important to understand the "HLA phenotypes" of the individuals in this case?
4. From what you know about the structure of an antibody, explain how an IgE can be "peanutspecific."
5. One way to test for an allergy is to mix a specific allergen with basophils and mast cells from a patient and look for "degranulation." What is occurring when these cells degranulate? How does this become a positive test for a specific allergy?
6. Why were the patients put on an immunosuppressive therapy after their

transplantations?

Pre/Corequisites & Advisories
Prerequisite MLT 1

Library	
List of suggested materials has been given to librarian?	Yes
Library has adequate materials to support course?	Yes
Additional Comments/Information	
Librarian Approval: Carol Womack Date: 10/25/2010	

Student Learning Outcomes
1. State the principles of the common immunology/ serology assays performed in the immunology department of a clinical laboratory
2. Correlate an abnormal immunology/ serology test result with the appropriate disease or sets of common diseases
3. Evaluate the suitability of specimens submitted to the immunology department according to a specific criteria of specimen acceptance and rejection

Transfer/General Ed
IGETC Area:
Does NOT satisfy any area of IGETC:
CSU GE Area:
Does NOT satisfy any area of CSU GE:
SMC GE Area:
Does NOT satisfy any area of SMC GE:

Distance Ed Distance Education Application	
Delivery Methods	Online Hybrid (51% or more of course is held on-campus)
Distance Education Quality	
Quality Assurance	Course objectives have not changed Course content has not changed Method of instruction meets the same standard of course quality Outside assignments meet the same standard of course quality

	Serves comparable number of students per section as a traditional course in the same department Required texts meet the same standard of course quality
Additional Considerations	Evaluation methods are in place to produce an annual report to the Board of Trustee on activity in offering this course or section following the guidelines to Title 5 Section 55317 (see attachment) and to review the impact of distance education on this program through the program review process specified in accreditation standard 2B.2. Adequate technology resources exist to support this course/section Library resources are accessible to students Specific expectations are set for students with respect to a minimum amount of time per week for student and homework assignments Adequately fulfills "effective contact between faculty member and student" required by Title 5. Will not affect existing or potential articulation with other colleges Special needs (i.e., texts, materials, etc.) are reasonable Complies with current access guidelines for students with disabilities
Guidelines and Questions for Curriculum Approval of a Distance Education Course Student Interactions	
Student-Instructor Interaction	The interaction between students and instructor online will be via email, discussion threads, and powerpoint lectures with designated assignments and objectives will be available on e-companion. The instructor will be available at specific block times during the week (3 days per week, 1 hours per session) for the students to interact and discuss concerns and questions with the instructor. The instructor will be available by email at all times and have additional office hours for in-person/ on-campus meetings.
Student-Student Interaction	Students will be required to interact online via discussion thread and facilitated group email discussions at least 3 times per week at their own time. They will be required to submit questions, respond to relevant questions posted by the instructor and/or other students, and comment on topics and ideas presented. These interactions will be tracked by the instructor to document their online participation in the discussions.
Student-Content Interaction	The students will be able to access their powerpoint lecture materials as well as objectives and assignments for the course. They will also be required to access the socrative website via www.socrative.com to take their online quizzes for which immediate feedback is available. Access to the website is by instructor permission only and quizzes are timed. There will be weekly quizzes for this course. All exams will be administered on ground. Each chapter lecture module will have a homework assessment included that has an estimated time of 45 minutes to an

	hour to complete. They will have at least 4 such modules during the week.

Online class activities that promote class interaction and engagement	Brief Description	Percentage of Online Course Hours
Study and/or Review Sessions	Students will be given an online module for lectures and an accompanying study guide or assignment questions for which they can use their online lecture modules and/or textbook to answer the questions. These will be submitted to the instructor online via email for evaluation. In addition, students will be required to submit questions to the discussion thread at least 3 times a week and submit answers to questions posted by the instructor at least three times a week.	40%
Project Presentation	Students will be given group case studies for which they will be required to work in assigned groups. They will submit progress reports for their online group activities to discuss answers to the case study questions as well as the final diagnosis. They will be required to submit reports of their online interactions as well as an evaluation of each member of their team. There will be criteria on peer evaluation such as attendance of all live and/or online meetings, and etc. Students will present their case studies on ground.	20%

Describe how content will be organized and delivered in the interest of achieving course outcomes/objectives (e.g. what are the methods of instruction being used, technologies used, approximate time schedule, necessary instructional materials.)
The content will be organized according to the textbook chapter presentation and references. The delivery of the content will be by the following methods: online lecture and assignment modules. Lectures will be presented by powerpoint and assignments will be posted per lecture module. In addition, students will also take a short online quiz following the lecture module. These will take approximately 45 minutes per chapter module. There will be a minimum of at least 4 such exercises per week. Technologies required would be student access to e-companion.
Describe the technical qualifications an instructor would need and the support that might be necessary for this course to be delivered at a distance (e.g. the college?s existing technology, CCCConfer certification, other specialized instructor training, support personnel, materials and resources, technical support, etc.)
The instructor would need to be trained to use and be supported by the college?s existing

technology such as e-companion.
Describe any student support services one might want or need to integrate into the online classroom for this course (e.g. links to counseling, financial aid, bookstore, library, etc.)
Students will need to have access to online resources provided by the main textbook that we will be using and this needs to be integrated in the online materials used by the students.
Describe how the design of the course will ensure access for students with disabilities including compliance with the regulations of Section 508 of the Rehabilitation Act.
For any videos and demonstrations used online, captions will be provided to ensure access for all students
Using one of the course objectives, describe an online lesson/activity that might be used in the course to facilitate student learning of that objective. Be sure the sample lesson/activity includes reference to the use of online teaching tools (such as drop box or threaded discussion, or multimedia such as Articulate, Flash, Jing, etc.).
Course objective: Describe the ABO, Rh and other blood group antigens, relating methods for detecting and their clinical significance. Online lesson/activity used in the course: We will use a threaded discussion to facilitate learning and mastery of this objective. Students will be given problems so that they can identify various pairings and permutations of ABO, Rh, and other blood group antigens and discuss how they solved the problems online. They will be given the opportunity to ask questions, discuss, and check their answers after the discussion period.
Assessment Best Practices
30%-**Online lectures, assignments, and quizzes** - Students will be given regular assignments (at least twice per week) and they will be submitted to the instructor online. The instructors will then submit feedback within 24 hours of homework submission. Students will be given online quizzes for which the answers to the questions will be immediately available. This can be done through, for example, the Socrative website ? www. socrative.com where the instructor can post quizzes, record quizzes that students have taken, and give students immediate feedback to the quizzes. The instructor will post daily questions/ topics relevant to the lecture material and students are required to participate via discussion threads posted on e-companion. They may also be required to post their own relevant questions and/topics that will require feedback from their classmates. Timed online quizzes bi-weekly quizzes will be given to students and immediate feedback will be available. These online quizzes are designed so that students are given access to the site by the instructor at specific times during the week. In addition, immediate feedback is available and quiz scores are recorded on the website for the instructor. Students may only take the quizzes once. We will be using the student learning outcomes as a guide to assess student learning via online interactions. Quiz questions will cover specific SLO topics to determine whether or not students are able to retain and apply the required information needed to be successful in the course.
Attached Files
Minimum Quals

Santa Monica College
Update (NEW/MODIFIED DE)
Expanded Course Outline for MLT 4 - Clinical Chemistry

Course Cover	
Discipline	MLT-Medical Laboratory Technician
Course Number	4
Full Course Title	Clinical Chemistry
Catalog Course Description	This course will discuss basic interpretations of biochemistry and the concentration of enzymes, carbohydrates, lipids, proteins, electrolytes, and blood gases. The need for drug testing and evaluation will also be a part of this curriculum. The student will perform routine clinical tests on biological fluids, maintain quality assurance records, and perform preventative maintenance on instrumentation. This course will utilize computer technology to enhance student learning.
Rationale	
Rationale	As a program, we have decided to change the MLT courses to hybrid courses for the following reasons which we believe will benefit our SMC students: 1. It will offer them the chance to complete the program within 2 years. We will be able to offer 2 courses per semester instead of 1 and possibly maintain our Sunday on-ground lab component. Most of our students are already working professionals in the clinical laboratory field and are interested in moving up the career ladder. They are all motivated to complete in a timely manner . The hybrid courses will not be less rigorous than they would be on ground as our curriculum is modeled after nationally accredited programs that also offer hybrid MLT courses - since we are seeking national accreditation for our MLT program. This type of accreditation has specific requirements on curriculum development to maintain consistency among different MLT programs nationwide. 2. Our clinical affiliates, specifically UCLA, are anticipating to train them in their sites as soon as possible. They are ready to take students.
Proposal Information	
Proposed Start	Year: 2013 Semester: Fall
Proposed for Distance Ed	Yes
Proposed for Global Citizenship	No
Course Unit/Hours	
Variable Hour	NO

Exist	
Credit Hours	Min: 5.00
Weekly Lecture Hours	Min: 3.00 (Sem: 54)
Weekly Laboratory Hours	Min: 6.00 (Sem: 108)
Weekly Arranged Hours	Min:
Total Semester Instructional Hours	162.00
Repeatability	May be repeated 0 time(s)
Grading Methods	Letter Grade or P/NP
Minimum Qualification	
Minimum Qualifications:	Other
Program Applicability	
Designation	Credit - Degree Applicable
Proposed For	**AS Degree** -Medical Laboratory Technician
Course Objectives	
Upon satisfactory completion of the course, students will be able to:	
Regarding Clinical Chemistry, upon completion of the lecture portion of this course the student shall be able to:	
1. Relate the proper specimen collection and handling, type of quality control used, reference ranges, principle of analysis currently available, and sources of analytical errors for each of the analytes discussed or approached in the course.	
2. Outline the normal digestion, anabolism and catabolism of carbohydrates, proteins, and lipids within the body.	
3. Discuss the basic principles of laboratory instrumentation and state how they relate to the measurement of serum or body fluid analytes.	
4. Demonstrate an understanding of the mechanism by which the body regulates water and pH homeostasis.	
5. Discuss the anatomy and physiology of the following organs or systems. State some of the common pathological states and what analyte measurements would be utilize to monitor the function of each: Renal, Cardiovascular, Hepatic, Thyroid, Bone, and Pancreatic.	
6. List the reasons that therapeutic drugs are monitored and state the current drugs most often monitored and the procedure most often used.	
Regarding Clinical Chemistry, upon completion of the laboratory portion of this course the student shall be able to:	
1. Demonstrate the following skills as pertaining to each individual test that is listed. i.	

Relate the proper specimen collection and handling techniques. ii. Perform acceptable quality control measures iii. State if results are within reference range iv. State principle of analysis of method available v. State sources of error and methods to minimize or eliminate these errors. vi. Perform the analysis within +/- 2SD of the recognized mean for a control serum; Proteins, enzymes, electrolytes, carbohydrates, lipids, nonprotein nitrogen; Perform & Calculate: creatinine clearance, anion gap, osmolarity, dilutions, VLDL, LDL, Beers Law.	
2. Explain the basic principles of laboratory instrumentation available in the clinical labs.	
3. Perform routine preventative maintenance and troubleshooting procedures on the instruments available.	
4. Determine if the results on different analytes are consistent as far as determining the status of the following organs or systems: Renal, cardiovascular, hepatic, pancreatic.	
Course Content	
25%	Carbohydrates, Acid Base and Electrolytes
25%	Proteins and Other Nitrogen-Containing Compounds
25%	Enzymes, Lipids and Lipoproteins
25%	Special Chemistry (Endocrinology, Tumor Markers, TDM, Toxicology)
Total: 100%	
Lab Content	
10%	Laboratory Safety
30%	Pipetting Skills and Reagent Preparatin
20%	Quality Control
30%	Automated Instrumentation and Methodologies
10%	Computer Use for Instrumentation
Total: 100%	
Methods of Evaluation	
Methods	• 30% - Final exam • 45% - Lab Reports Laboratory Assignments Lab Practical - Practicum style tests to show working knowledge of procedural tests • 5% - Other Core Abilities - lab skills/technique performance as assessed by instructor throughout course • 20% - Quizzes • 100% - Total
Methods of Presentation	
Methods	Lab Lecture and Discussion
Other Methods	Demonstration Case Studies Online modules either at http://www.medtraining.org/ or on

	eCompanion
Appropriate Textbooks	
Textbooks such as the following are appropriate:	
Formatting Style	APA
Textbooks	
1. Michael L. Bishop, Edward P. Fody, and Larry Schoeff. Baltimore, MD. *Clinical Chemistry: Principles, Procedures, Correlations*, 5th ed. Lippincott Williams & Wilkins, 2005, ISBN: 0-7817-4611-6.	
1. Online MTS (Medical Training Solutions) modules at http://www.medtraining.org/ Provided by Medical Training Solutions, Inc., PO Box 17349, Seattle, WA 98127, site licenses will be purchased for students to be utilized either via eCompanion or on-campus in the Biology computer lab	
Assignments	
Sample Assignment	

1. Online module: " Protein Electrophoresis" Student will access module content which includes images, video and text through http://www.medtraining.org/ and then complete the online module quizzes. Scores will then be recorded and transmitted to instructor. Upon successful completion of "Protein Electrophoresis" module, the student will be able to:
    1. Describe the methods of agarose gel electrophoresis, immunofixation, CSF isoelectric focusing and densitometry.
    2. Name the clinical conditions most commonly associated with monoclonal gammopathy, and some key clinical features of each condition.
    3. View an agarose gel, an immunofixation, a densitometry, and determine if a monoclonal gammopathy is present. If it is present, the user will be able to identify the immunoglobulin type.
    4. View an agarose gel of serum, urine, or an isoelectric focusing gel of cerebrospinal fluid and identify the electrophoresis pattern (e.g., inflammation, liver disease, hemolysis, alpha-1 antitrypsin deficiency, tubular proteinuria, CSF oligoclonal banding, etc). Online exercise has an Exam following the content.
2. Online module: "Cardiac Markers" Student will access module content which includes images, video and text through http://www.medtraining.org/ and then complete the online module quizzes. Scores will then be recorded and transmitted to instructor. Upon successful completion of "Cardiac Markers" module, the student will be able to:
    1. Describe basic cardiac anatomy, physiology, and direction of coronary blood flow
    2. Correlate the electrical activity of the heart with coronary blood flow
    3. Define the terms: angina, ischemia, cardiovascular disease, and coronary artery disease
    4. List the symptoms of ischemia
    5. Describe the pathophysiology of coronary artery disease, acute coronary syndrome, acute myocardial infarction, and heart failure
    6. List the criteria for diagnosing an acute myocardial infarction

7. List the causes and symptoms of heart failure
8. Identify the current biomarkers of acute myocardial infarction
9. Identify the current biomarker for heart failure
10. Discuss the Framingham Score, including risk factors used in the calculation
11. Identify biomarkers of coronary risk assessment

3. Case Study

Working in groups of 3 to 4, students will be presented with a case study that describes a brief medical scenario. Following the scenario will be related questions that the students will answer and then present the case study to the class. The following is an example of a possible case study.

A 31-year-old woman was admitted into a regional hospital for abdominal pain, decreased appetite, malaise, confusion, and tea-colored urine. Investigations showed acute liver failure with a markedly decreased liver function characterized by greatly increased aminotransferases, bilirubin concentration, prothrombin time and international normalized ratio. There was no history of liver disease or intake of herbal medicines or over-the-counter medications. Her condition worsened 2 days later, and she was transferred to our hospital for further management and the possibility of liver transplantation. A physical examination revealed a jaundiced woman in a fair general condition and with a soft but tender right upper quadrant with no guarding or rebound tenderness of the abdomen. She went into a semicomatose state 1 day later. Routine laboratory testing of a blood sample obtained on her arrival in the hospital revealed the following results: bilirubin, 1210 μmol/L (reference interval, 7–19 μmol/L); alanine aminotransferase, 6170 U/L (reference interval, 5–31 U/L); aspartate aminotransferase, 5080 U/L (reference interval, 12–28 U/L); alkaline phosphatase, 150 U/L (reference interval, 34–104 U/L); ammonia, 171 μmol/L (reference interval, 0–33 μmol/L); lactate dehydrogenase, 6830 U/L (reference interval, 200–360 U/L); prothrombin time, 39.7 s (reference interval, 11.3–13.2 s); international normalized ratio, 3.3; acetaminophen, 121 μmol/L (therapeutic up to 100 μmol/L). Other results were unremarkable. A serologic evaluation was negative for hepatitis A and B. The plasma acetaminophen concentration prompted the clinical suspicion of drug overdose, but she denied taking acetaminophen. The patient's liver enzymes, prothrombin time, international normalized ratio, and acetaminophen concentrations were monitored on subsequent days. Her general condition and liver function gradually improved, but her plasma acetaminophen concentration remained >100 μmol/L. Failure of the liver to metabolize the drug was suspected, and liver transplantation was contemplated at that juncture.

1. What are the common causes of acute liver failure?
2. What is the usual pharmacokinetic pattern of acetaminophen after ingestion, and how does overdose cause liver injury?
3. What methods are available to measure acetaminophen concentrations?
4. What factors interfere with acetaminophen measurement?

Pre/Corequisites & Advisories	
Prerequisite MLT 1	
Library	
List of suggested materials has been given to librarian?	Yes
Library has adequate materials to support course?	Yes
Additional Comments/Information	
Librarian Approval: Carol Womack Date: 10/25/2010	
Student Learning Outcomes	
1. Evaluate suitability of clinical chemistry specimens according to the criteria of acceptance and rejection.	
2. Prepare chemistry specimens for analysis.	
3. Recognize normal chemistry test results and correlate abnormal results with the correct disease.	
Transfer/General Ed	
IGETC Area:	
Does NOT satisfy any area of IGETC:	
CSU GE Area:	
Does NOT satisfy any area of CSU GE:	
SMC GE Area:	
Does NOT satisfy any area of SMC GE:	
Distance Ed **Distance Education Application**	
Delivery Methods	Online Hybrid (51% or more of course is held on-campus)
Need/Justification	
Distance Education Quality	
Quality Assurance	Course objectives have not changed Course content has not changed Method of instruction meets the same standard of course quality Outside assignments meet the same standard of course quality Serves comparable number of students per section as a traditional course in the same department Required texts meet the same standard of course quality

Additional Considerations	Evaluation methods are in place to produce an annual report to the Board of Trustee on activity in offering this course or section following the guidelines to Title 5 Section 55317 (see attachment) and to review the impact of distance education on this program through the program review process specified in accreditation standard 2B.2. Adequate technology resources exist to support this course/section Library resources are accessible to students Specific expectations are set for students with respect to a minimum amount of time per week for student and homework assignments Adequately fulfills "effective contact between faculty member and student" required by Title 5. Will not affect existing or potential articulation with other colleges Special needs (i.e., texts, materials, etc.) are reasonable Complies with current access guidelines for students with disabilities
Guidelines and Questions for Curriculum Approval of a Distance Education Course Student Interactions	
Student-Instructor Interaction	The interaction between students and instructor online will be via email, discussion threads, and powerpoint lectures with designated assignments and objectives will be available on e-companion. The instructor will be available at specific block times during the week (3 days per week, 1 hour per session) for the students to interact and discuss concerns and questions with the instructor. The instructor will be available by email at all times and have additional office hours for in-person/ on-campus meetings.
Student-Student Interaction	Students will be required to interact online via discussion thread and facilitated group email discussions at least 3 times per week at their own time. They will be required to submit questions, respond to relevant questions posted by the instructor and/or other students, and comment on topics and ideas presented. These interactions will be tracked by the instructor to document their online participation in the discussions.
Student-Content Interaction	The students will be able to access their powerpoint lecture materials as well as objectives and assignments for the course. They will also be required to access the socrative website via www.socrative.com to take their online quizzes for which immediate feedback is available. Access to the website is by instructor permission only and quizzes are timed. There will be weekly quizzes for this course. All exams will be administered on ground. Each chapter lecture module will have a homework assessment included that has an estimated time of 45 minutes to an hour to complete. They will have at least 4 such modules during the week.

Online class	**Brief Description**	**Percentage**

activities that promote class interaction and engagement		of Online Course Hours
Study and/or Review Sessions	Course component: Powerpoint lectures/ Study and/ or Review Sessions Students will be given an online module for lectures and an accompanying study guide or assignment questions for which they can use their online lecture modules and/or textbook to answer the questions. These will be submitted to the instructor online via email for evaluation. In addition, students will be required to submit questions to the discussion thread at least 3 times a week and submit answers to questions posted by the instructor at least three times a week	20%

Describe how content will be organized and delivered in the interest of achieving course outcomes/objectives (e.g. what are the methods of instruction being used, technologies used, approximate time schedule, necessary instructional materials.)
The content will be organized according to the textbook chapter presentation and references. The delivery of the content will be by the following methods: online lecture and assignment modules. Lectures will be presented by powerpoint and assignments will be posted per lecture module. In addition, students will also take a short online quiz following the lecture module. These will take approximately 45 minutes per chapter module. There will be a minimum of at least 4 such exercises per week. Technologies required would be student access to e-companion.
Describe the technical qualifications an instructor would need and the support that might be necessary for this course to be delivered at a distance (e.g. the college?s existing technology, CCCConfer certification, other specialized instructor training, support personnel, materials and resources, technical support, etc.)
The instructor would need to be trained to use and be supported by the college?s existing technology such as e-companion.
Describe any student support services one might want or need to integrate into the online classroom for this course (e.g. links to counseling, financial aid, bookstore, library, etc.)
Students will need to have access to online resources provided by the main textbook that we will be using and this needs to be integrated in the online materials used by the students.
Describe how the design of the course will ensure access for students with disabilities including compliance with the regulations of Section 508 of the Rehabilitation Act.
For any videos and demonstrations used online, captions will be provided to ensure access for all students.
Using one of the course objectives, describe an online lesson/activity that might be used in the course to facilitate student learning of that objective. Be sure the sample lesson/activity includes reference to the use of online teaching tools (such as drop box or

threaded discussion, or multimedia such as Articulate, Flash, Jing, etc.).
Course Objective: Fill in the appropriate chemical reaction, anatomical location, and/ or the appropriate by-product of a chemical reaction relevant to the conjugation of bilirubin in events of intravascular or extravascular hemolysis. Online/ lesson activity in the course: We would be using Flash multimedia technology to aid the students in understanding the sequential process of bilirubin conjugation. There is an online module that allows the students to practice memorizing the sequence as well as specific chemical reactions and anatomical locations and byproducts of reactions.
Assessment Best Practices
Attached Files
Minimum Quals

SANTA MONICA COLLEGE PROGRAM OF STUDY

Medical Laboratory Technician
Associate in Science (AS)

The Medical Laboratory Technician program prepares students to be employed in clinical laboratories serving public and private health care facilities to perform low to moderate complexity analysis of patient specimens. Completion of pre-requisite courses is required for admission into the program. The program course of study is composed of the didactic portion in which principles of laboratory theory and techniques are taught and a practicum or clinical practice portion is conducted at affiliated clinical laboratories. The disciplines in which students will train are: hematology, coagulation, urinalysis, clinical chemistry, microbiology, immunology, and phlebotomy. Emphasis will be placed on student training to operate and maintain automated clinical laboratory instruments. Graduates of the MLT program are eligible to sit for the national and state board exams and obtain licensure as medical laboratory technicians. A grade of "C" or better in all the MLT courses is required for successful completion of the courses and advancement into clinical training. For information on MLT licensing and exams, please see the California Department of Public Health, Laboratory Field Services website: http://www.cdph.ca.gov/programs/lfs/Pages/MedicalLaboratoryTechnician%28MLT%29.aspx

This Associate degree involves satisfactory completion of a minimum of 60 semester units with a C average or higher, including the semester units of the area of emphasis (articulated below), fulfillment of the Global Citizenship requirement, and fulfillment of all Santa Monica College general education requirements, CSU GE, or IGETC. At least 50% of the area of emphasis units must be completed at Santa Monica College. Each course in the area of emphasis must be completed with a grade of C or higher. Additional graduation requirements for the Associate degree are available at the Transfer/Counseling Center and online at www.smc.edu/articulation.

Catalog rights dictate that a student may satisfy the requirements of a degree or certificate by completing the general education and area of emphasis requirements in effect at any time of the student's continuous enrollment. Continuous enrollment is defined as enrollment in consecutive Fall and Spring semesters until completion.

Area of Emphasis

Required Courses		Units
MLT 1	Introduction to Clinical Laboratory Profession	1
MLT 2	Hematology, Coagulation, Urine and Body Fluid Analysis	5
MLT 3	Blood Banking and Immunology	5
MLT 4	Clinical Chemistry	5
MLT 5	Clinical Microbiology	5
MLT 6	Phlebotomy for MLT	5
MLT 7	MLT Clinical Practicum	10
Total Units for Area of Emphasis:		**36**

PID 167

Criteria A. Appropriateness to Mission

1. Statement of Program Goals and Objectives

Santa Monica College will offer a Medical Laboratory Technician (MLT) Program resulting in an Associate in Science degree. Graduates of the MLT Program are eligible to sit for the American Society for Clinical Pathology (ASCP) Board of Registry and American Association of Bioanalysts Board of Registry (AAB) examinations for MLT licensure purposes in California. The mission of the SMC MLT program is to: (a) provide high quality, innovative education to support student success, (b) develop partnerships with clinical laboratory industry to support and sustain the training of clinical laboratory professionals, and (c) prepare competent medical laboratory technicians for the rigorous clinical laboratory careers. This program will not only fill an immediate need for Medical Laboratory Technicians, it will establish a pipeline for the Clinical Laboratory Scientist (CLS) position, thus offering incumbent workers the opportunity for career advancement.

2. Catalog Description

The Medical Laboratory Technician program prepares students to be employed in clinical laboratories serving public and private health care facilities to perform low to moderate complexity analysis of patient specimens. Completion of pre-requisite courses is required for admission into the program. The program course of study is composed of the didactic portion in which principles of laboratory theory and techniques are taught and a practicum or clinical practice portion is conducted at affiliated clinical laboratories. The disciplines in which students will train are: hematology, coagulation, urinalysis, clinical chemistry, microbiology, immunology, and phlebotomy. Emphasis will be placed on student training to operate and maintain automated clinical laboratory instruments. Graduates of the MLT program are eligible to sit for the national and state board exams and obtain licensure as medical laboratory technicians. A grade of "C" or better in all the MLT courses is required for successful completion of the courses and advancement into clinical training.
For information on MLT licensing and exams, please see the California Department of Public Health, Laboratory Field Services website (http://www.cdph.ca.gov/programs/lfs/Pages/MedicalLaboratoryTechnician(MLT).aspx)

3. Program Requirements

To qualify for the Medical Lab Technician program students must complete the following prerequisite courses:

Prerequisite Courses
ENGL 1: Reading and Composition I (3 units)
ANATMY 1: General Human Anatomy; (4 units)
PHYS 3: Human Physiology; (4 units)
MCRBIO 1: Fundamentals of Microbiology; (5 units)
CHEM 12: General Chemistry (5 units)
COM ST 35: Interpersonal Communication; (3 units)

Program Core Courses
MLT 1: Introduction to Clinical Laboratory Profession; (1 unit)
MLT 2: Hematology, Coagulation, Urine and Body Fluid Analysis I; (5 units)
MLT 3: Blood Banking and Immunology ; (5 units)
MLT 4: Clinical Chemistry (5 units)
MLT 5: Clinical Microbiology ; (5 units)
MLT 6: Phlebotomy (5 units)
MLT 7: Clinical Practicum; (10 units)

4. Background and Rationale

Professionals in the Clinical Laboratory Science career ladder are integral to the health care team. These professionals conduct a wide range of diagnostic assessments, from simple blood tests to genetic testing to help physicians determine treatment plans. From entry-level phlebotomists to baccalaureate-trained Clinical

Laboratory Scientists, workforce shortages in the clinical laboratory can cause delays in diagnosis and increase patients' length of stay.
Both the CLS and the MLT professions have above average vacancy rates, based on the findings of a California Hospital Association (CHA) survey of hospitals statewide. In fact, the MLT occupation ranks in the top three of the selected allied health professions with a vacancy rate of 6.3%, nearly 2 percentage points higher than the average of 4.4%.

A recent publication "*California's Other Healthcare Crisis: The Clinical Laboratory Workforce Shortage*" was released by the Health Laboratory Workforce Initiative (HLWI), an organization composed of the Hospital Council of Northern and Central California and the California Hospital Association (CHA). It is reported that in "California hospitals an average of 3 CLS vacancies in the previous year and predicted that by 2010 the average number of CLS vacancies per hospital would increase to 4. This represents an approximate vacancy rate of 30% if the problem is not addressed. The survey also revealed that it takes an average of 6 months for hospitals to fill a CLS vacancy."[1] Unfortunately, in California, the current shortage in clinical laboratory personnel is projected to grow more serious in the next five years due to a significant number of pending retirements[2]. In California, the average age of a CLS is 50. A recent CHA survey reported that nearly one-third of CLS in California are expected to retire by 2015. CHA also reported that California CLS programs currently graduates "approximately half that number annually and those eligible for retirement within this profession increases to a staggering 844."

While the number of pending retirements among MLTs is lower, only 67, the MLT position is the second rung of the clinical laboratory career ladder and is a relatively new occupation in California. As unfilled demand for CLS's increases and employers recognize the value of the Medical Laboratory Technician, the demand for MLTs will increase.
In "Critical Roles: California's Allied Health Workforce," the California Hospital Association recommends that the state prioritize funding for health science education and health workforce preparation programming at California's community colleges. The report recognizes that "hospitals are critical partners in developing a solid health care workforce, significantly investing in programs that educate and train health professionals." [3] The involvement of these hospitals will not only provide financial resources and technical assistance, it will ensure that the health science curriculum is closely aligned with the needs of employers. Greater articulation between California's institutions of higher education is also necessary, particularly between the community colleges and the state's two university systems.

Santa Monica College and its workforce and educational partners have taken a proactive approach to alleviate the shortages faced by local clinical laboratories by developing a program that is industry driven and responsive, aligned with urgent workforce needs, and articulated with other rungs on the clinical laboratory career ladder.

Criteria B. Need

5. Enrollment and Completer Projections

The projected enrollment for this program is 24 per year with the possibility of increasing to 48 per year when the program courses are offered via an online hybrid format with laboratory activities to be held on ground. This projection is based on the availability of laboratory bench space at the college.
Courses required as pre-requisites to the program all are high demand courses within the Physical and Life Science departments and enjoy relatively high retention and success rates-- Microbiology 92% retention & 90% success; Chemistry 11 and 12 80% retention & 70% success. While approximately one third of MLTs work in the hospital setting, there are many other industries in which an individual with an MLT license can enter including biomedical, biotech, research and development, forensic labs, and equipment manufacturing and sales. This allows the program to appeal to a broad population. In addition, the Medical Laboratory Technician occupation fits into a career path that is high demand and high wage. Therefore attainment of the MLT license puts individuals on a clear path of continuing education and economic success. As the information and

[1]

[2] California Hospital Association, "Critical Roles: California's Allied Health Workforce," February 2011, page 4.
[3] Ibid., page 2.

understanding of the Medical Laboratory Technician program and occupational opportunities become well known we anticipate similar program demand as other Allied Health Division programs at the college such as Respiratory Therapy and Nursing which have active waitlists.

6. Place of Program in Curriculum

The Medical Laboratory Technician program is housed in the Life Sciences department of the college. While the program is similar in its program structure as the programs in the health sciences such as the Respiratory Therapy and Nursing programs given similar prerequisites, program entrance, cohort design, clinical placement and close hospital and health system partnerships, the MLT career is different in that MLTs provide indirect patient care. Most of the work is done in a laboratory setting and interaction is limited to analysis of blood, body fluid, and tissue samples gathered by other health professionals. The program requires laboratory facilities and faculty expertise in the Life Sciences department that will ensure the success of the program.

7. Similar Programs at Other Colleges in Service Area

Currently, there are only seven state approved MLT training programs in operation in the state, including DeAnza College, Folsom Lake College, and the Institute of Medical Education in northern California, Southwestern College and San Diego Miramar College in San Diego County, Saddleback College in Orange County, and College of the Canyons in Canyon County. This geographic placement means that the greater Los Angeles area, including several of the state's largest hospital systems, including the UCLA Health System, does not have direct access to qualified medical laboratory technicians. In addition, the state's only CSU to offer the CLS degree program, California State University, Dominguez Hills, also does not have an easily accessible MLT feeder program. Most of the MLT programs listed above are accredited by the State of California. The SMC MLT program seeks to obtain accreditation from the State as well as national accreditation from the National Accrediting Agency of Clinical Laboratory Sciences (NAACLS). A rigorous academic curriculum is required of MLT programs that are accredited by NAACLS. The NAACLS-prescribed curriculum is aligned with CLS program requirements to enable MLT graduates to pursue CLS careers should they wish to do so.

8. Labor Market Information & Analysis (CTE only)

The labor market data indicates that a Medical Laboratory Technician (MLT) Program which supports the clinical laboratory career ladder will provide a much needed workforce for the region's hospitals and clinical laboratories. This project will not only fill an immediate need for Medical Lab Technicians, it will establish a pipeline for the Clinical Lab Scientist (CLS) position, thus offering incumbent workers the opportunity for advancement.

The attached EMSI, Economic Modeling Specialists Inc. data is a compilation of more than 80 government and private sector sources. It is updated every six months and pulls together information and data for the country, the state and local ZIP Codes.

The EMSI report (Occupational Report, LA County and Greater Region) focuses on the Medical and Clinical Laboratory Technician O*NET 29-2012 occupations. While the report indicates that there have been 460 completions in this job category, only 10 of these were at the Clinical/Medical Laboratory Technician level and this is a decrease of completers from 80 in 2007. The annual regional openings estimate for 2010 at the technician level were 149 and with only 19 completions.

The expected growth between 2010 and 2015 for this occupation is 10.8% in the LA County and by 11.6% in the greater region. Unfortunately while the demand for this occupation has grown and continues grow, the number of programs and hence program completers has fallen. Lack of financial support for these programs has been a factor in the decline in program offerings throughout the state. In addition, many students fail to complete because the curriculum structure of most programs does not allow them to maintain their employment status. The SMC MLT program, however, will offer a redesigned structure that incorporates a hybrid/online format to allow working individuals to maintain employment while being enrolled in them program.

Data from this report regarding salaries in this occupation are not individually noted according to specific occupations and range from $17.27 per hour to $37.52 per hour, with a median wage of $23.70 per hour within LA County.

9. Employer Survey (CTE only)

In February of 2012, the Life Sciences Department at Santa Monica College conducted an online survey (utilizing Survey Monkey) of thirteen potential local employers and a paper and pencil survey sent to 185 potential

employers including the broader geographical areas of Central and Southern California. The response rate for the local employers was 92% while the paper pencil survey received two responses. Those responding included Laboratory Directors and Supervisors, Human Resource Recruiters for Clinical Laboratories, and Clinical Laboratory Educators. Survey questions included employment projections, hiring qualifications and priorities, and salary ranges for qualified candidates.

The survey showed:

- 72.7% of respondents indicated that a barrier preventing the use of Medical Laboratory Technicians within their organizations was the shortage of workers with necessary qualifications.
- 45.5% of respondents indicated that a barrier preventing the use of Medical Laboratory Technicians with their organizations was the shortage of available training programs.
- 71.4% of respondents indicated that an MLT Associate Degree + License is a Highly Desirable qualification for clinical laboratory work within their organizations.
- 36% of respondents indicated the desire to be highly active in MLT Program partnerships.

10. Explanation of Employer Relationship (CTE only)

The program is initially funded by the UCLA Medical Center, a prospective employer for graduates of the program, to establish a new program MLT at Santa Monica College. It is the goal of the program to establish partnerships with local laboratories where these industry partners will be able to contribute to curriculum development as well as in financial aspects of supporting and sustaining the MLT program such as clinical placements.

11. List of Members of Advisory Committee (CTE only)

Posie Carpenter, Chief Administrative Officer, Santa Monica UCLA Medical Center
Susie Lu, Associate Director, Santa Monica UCLA Medical Center
Robin Clayton, Human Resources, Santa Monica UCLA Medical Center
Debra Cobb, Director of Operations, Laboratory, UCLA Medical Center
Geri Goodeliunas, Clinical Laboratory Manager, Santa Monica UCLA Medical Center
Paula D'Amore, Faculty, California State University, Dominguez Hills
Cheryl Jackson-Harris, Faculty and CLS program, California State University, Dominguez Hills
Tony Johnson, Clinical Laboratory Supervisor, Santa Monica UCLA Medical Center
Erica Klein, Supervisor, Providence St. Joseph Medical Center
Carol Moeller, Education Coordinator, Cedars-Sinai Medical Center
Ann Shadler, Director of Operations, Anatomic Pathology, UCLA Medical Center
Peter Robinson, Quality Assurance Director, Quest Diagnostics
Becky Rosser, Education and Development, Kaiser Permanente Southern California
Khan Andrews, Clinical Laboratory, UCLA Medical Center
Carol Block, Clinical Laboratory, UCLA Medical Center
Aaron Magali, Clinical Laboratory, UCLA Medical Center
Arnie Sheer, Clinical Laboratory, UCLA Medical Center
Emil Jose, Clinical Laboratory, HR, Quest Diagnostics
Kim Kirshenbaum, Clinical Laboratory, HR, Quest Diagnostics
Jose Cue, Staff, Counseling Dept, Santa Monica College
Dawn Murphy, Staff, MLT program, Santa Monica College
Valerie Narey, Faculty, Life Sciences, Santa Monica College
Ida Danzey, Faculty, Nursing Program, Santa Monica College
Garen Baghdasarian, Chair/Faculty, Life Sciences, Santa Monica College
Patricia Ramos, Dean, Workforce/Economic Development, Santa Monica College
Georgia Lorenz, Dean, Academic Affairs, Santa Monica College
Jeff Shimizu, VP, Academic Affairs, Santa Monica College
Randal Lawson, VP, Santa Monica College
Dr. Chui L. Tsang, President, Santa Monica College

12. Recommendations of Advisory Committee (CTE only)

Advisory Committee members have been highly involved and acted as an impetus for the program and have contributed to the development of the MLT Program Curriculum. At the program's first Advisory Board meeting a half day workshop was conducted eliciting detailed feedback regarding the proposed curriculum. In addition, the California State University, Dominguez Hills Clinical Laboratory Science Program Director worked on an ongoing basis in the review and revision of the proposed curriculum.

Recommendations Advisory Committee meetings include:

- Attainment of national accreditation in addition to state approval is highly desirable
- Attention should be given to making the curriculum work seamlessly with the Clinical Laboratory Science Bachelor's Degree program so that students may easily continue moving up the Laboratory Sciences career ladder
- Clinical Practicums with multiple placements may be the most rewarding for a student in the program. Not only will the student be able to experience multiple work environments, but they may have the advantage of being exposed to a greater number and type of tests.
- Actively recruit highly qualified and experienced program director as well as faculty members of the program
- Survey potential students for the best available class day and time to accommodate students who may be employed during the week.
- Highly recommend that prospective students complete their pre-requisite science courses within the last 5 years.
- Promote the program in the clinical laboratory workplaces to current employees who desire to move up the career ladder by holding on-site information sessions at the laboratory facilities
- Consult with different vendors that offer diagnostic instruments such as Beckman-Coulter and Roche Diagnostics to determine if they are willing to provide additional resources to fund MLT programs, based on their involvement with funding CLS programs.
- Obtain approval from the California Department of Public Health (CDPH) Laboratory Field Services prior to student participation in clinical training in various clinical laboratory facilities.
- Determine the required pre-clinical paperwork such as: student liability insurance, immunization records, background checks (Livescans), and Drug Testing status.

The proposed program and curriculum has received much enthusiastic support from the Advisory Committee Members. Discussion of the potential employment of program graduates caused particular excitement among the committee members.

Criteria C. Curriculum Standards Display of Proposed Sequence

Year	Summer	Fall	Winter	Spring
1	**Engl 1** (3) Math 2 (5)	**Anatomy 1 (5)** **Chem 12 (5)** **Com St 35 (3)**	Global Studies – History 10 (3) Philosophy 1 (3)	**Microbio 1 (5)** **Phys 3 (5)**
2	MLT 1 (1) MLT 2 (5)	MLT 3 (5) MLT 4 (5)	MLT 5 (5)	MLT 7 (10)

13. Transfer Applicability (if applicable)
    Currently, the MLT program is also applying for national accreditation (NAACLS) to strengthen the curriculum offered and align the course requirements with those required by CLS programs such as California State University Dominguez Hills. The program is collaborating with faculty from CSUDH to evaluate the current curriculum offered in the program to facilitate transfer of the MLT courses to the CSU CLS programs.

Criteria D. Adequate Resources

15. Library and/or Learning Resources Plan

The current capacity of the campus and Life Sciences Department is sufficient for the didactic and laboratory instructional needs of the Medical Laboratory Technician program. Additional resources necessary for the clinical practicum portion of the curriculum will be provided by the Clinical Affiliates.

16. **Facilities and Equipment Plan**
    Facilities currently available within the Life Sciences Department are sufficient for the Medical Laboratory Technician program. In addition, the majority of Laboratory and Classroom equipment needs for the Medical Laboratory Technician program already exist within the Life Sciences Department. The additional need for equipment has been identified and purchasing of this equipment is in process with Perkins 1C funds. We will also utilize external funding sources including a generous financial gift from a hospital partner, UCLA Health Systems.

17. **Financial Support Plan**
    UCLA Health Systems has generously committed to supporting the Medical Laboratory Technician Program at Santa Monica College with a monetary gift of $200,000 for the first two years of the program launch. This will allow the program to reach a high level of functioning very quickly. Beyond this funding the college is facilitating the search and proposal process for additional outside grant funds.

18. **Faculty Qualifications and Availability**
    The college has recruited and hired a qualified full time faculty member as required by the California Department of Public Health's Field Laboratory Services and the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

Criteria E. Compliance

19. **Based on model curriculum (if applicable)**
    N/A

20. **Licensing or Accreditation Standards**
    The Santa Monica College Medical Laboratory Technician Program has developed its curriculum with both the state approval and national accreditation standards as its guide. These standards and guidelines may be found at the following web links.

    California Department of Public Health - Laboratory Field Services (LFS)
    http://www.cdph.ca.gov/programs/lfs/Pages/default.aspx
    CALIFORNIA CODE OF REGULATIONS
    Title 17. Public Health
    DIVISION 1. STATE DEPARTMENT OF HEALTH SERVICES
    CHAPTER 2. LABORATORIES
    SUBCHAPTER 1. SERVICE LABORATORIES
    GROUP 2. CLINICAL LABORATORY REGULATIONS
    ARTICLE 2. TRAINING
    § 1035. Training Schools.
    § 1035.1. Phlebotomy Training Program Requirements.
    § 1035.3. Medical Laboratory Technician Training Program Standards.
    § 1035.4. Timeframes for Approval of Training Programs.

    National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
    http://www.naacls.org/accreditation/mlt/

21. **Student Selection and Fees**
    The Medical Laboratory Technician Program is open access to applicants that completed the pre-requisite courses, and students are subject to the regular enrollment fees. In addition the program meets the essential functions and technical standards required for employment.