



South Portland, Maine 04106
Emergency Medical Services Department

Title: Advanced Cardiology
Credit Hours: 4 (2 Lecture/2 Lab)
Lecture (or Lab): Wednesday 0900-1545, ETC 101
Office Hours – Location: By appointment

Catalog Number: EMSP 175 01
Total Contact Hours: 30 lecture/60 laboratory hours
Instructor: Leah Mitchell, BS, NRP, CCEMTP
Contact Information: lmitchell@smccme.edu

Course Syllabus

Course Description

This course provides an in-depth study into the pathophysiology and management of cardiovascular disease and related emergencies. Topics include a review of the cardiac patient, pathophysiology of heart and valve disease, acute coronary syndromes, atherosclerosis, specific conditions resulting from the atherosclerotic heart disease, peripheral vascular emergencies, pharmacologic intervention, dysrhythmia recognition, and management of cardiac emergencies.

Prerequisite courses: BIOL 138, EMSP 102, EMSP 115, EMSP 150, NURS 100; co-requisite courses: EMSP 170 and HLTH 155.

Course Objectives

After successfully completing the course, the student will be able to:

1. Explain and demonstrate integrity, empathy, self-motivation, professional appearance and personal hygiene, self-confidence, communication skills, time management skills, teamwork and diplomacy skills, respect, patient advocacy, and the careful delivery of services as paramount in the helping profession of healthcare.
2. Identify patients suffering from a cardiovascular emergency
3. Provide a thorough assessment for a patient experiencing a cardiovascular emergency
4. Explain and demonstrate the usage of a cardiac monitor to perform non-invasive cardiac monitoring, 12-lead ECG acquisition, synchronized and unsynchronized (defibrillation) cardioversion, and transcutaneous pacing (TCP)
5. Demonstrate, evaluate, and correlate interpretation of a monitoring lead and 12-lead ECG in relation to patient history and physical exam
6. Illustrate and apply the safe and proper method to perform procedural sedation
7. Describe the anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations and prognosis of, and pre-hospital implications for various cardiovascular emergencies
8. Implement a patient treatment plan for a patient experiencing a cardiovascular emergency utilizing knowledge of anatomy, physiology, epidemiology, electrophysiology, pathophysiology, psychosocial impact, presentations and prognosis of disease process
9. Employ clinical judgment and critical thinking when assessing and treating patients experiencing a cardiovascular emergency
10. Communicate your findings and treatment to medical oversight and other healthcare personnel
11. Document patient assessment findings and treatment plans

Topical Outline of Instruction

Methods of Instruction:

The course will consist of on-line work, facilitated classroom discussions with assessment of student knowledge, small group work, student presentation, lecture, practical skills rotations, and simulations.

Schedule:

| Week | Topics | Assignments |
|-------------|---|---|
| 1 1/17 | Course Introduction Cardiac Anatomy, Physiology, and ECG Review | LMS Assignments PCP5: V3.C2 p. 49-111 (<i>review</i>) EKG: Chapters 1-12 (<i>review</i>) PHD6: Chapters 1 & 4 Syllabus Statement |
| 2 1/24 | Multi-lead ECG Cardiac Assessment | LMS Assignments PCP5: V2.C6 p. 171-189, V3.C2 p. 111-117, 157-194 EKG: Chapter 13 PHD6: Chapters 4 Quiz-1 |
| 3 1/31 | Cardiac & Vascular Pathophysiology Cardiac Pharmacology | LMS Assignments PCP5: V3.C2 p. 117-157 MyBradyLab: V3.C2 PHD6: Chapters 9, 10, 13, 14, 15 & 17 Quiz-2 |
| 4 2/7 | Cardiac Arrest Management <ul style="list-style-type: none"> • Shockable Rhythms • Non-Shockable Rhythms | LMS Assignments PCP5: V3.C2 p. 111-130 ACLS: Parts 1, 2, 3, 4 & 5 <ul style="list-style-type: none"> • Respiratory Arrest • VF/Pulseless VT • Pulseless Electrical Activity • Asystole Quiz-3 |
| 5 2/14 | Management of Bradycardia | LMS Assignments PCP5: V3.C2 p. 111-130 ACLS: Part 5 <ul style="list-style-type: none"> • Bradycardia PHD6: Chapters 11 & 12 Quiz-4 |
| 6 2/21 | Management of Tachycardia | LMS Assignments PCP5: V3.C2 p. 111-130 ACLS: Part 5 <ul style="list-style-type: none"> • Tachycardia: Stable & Unstable PHD6: Chapters 11 & 12 Quiz-5 |
| 7 2/28 | Cardiac Arrest Management <ul style="list-style-type: none"> • ROSC • Special Considerations • Death & Dying | LMS Assignments PCP5: V1.C4 p. 71-74; V3.C2 p. 147-149 ACLS: Part 5 <ul style="list-style-type: none"> • Immediate Post-Cardiac Arrest Care Quiz-6 |
| 8 3/7 | Midterm & Peer Review Laboratory | LMS Assignments All previously assigned readings |
| 3/14 | SCHOOL VACATION | N/A |

| Week | Topics | Assignments |
|--|---|---|
| 9 3/21 | Management of Stroke | LMS Assignments PCP5: V3.C3 p. 195-223 ACLS: Part 5 Acute Stroke Quiz-8 |
| 10 3/28 | Management of Acute Coronary Syndromes | LMS Assignments PCP5: V3.C2 p. 130-139 ACLS: Part 5 <ul style="list-style-type: none"> Acute Coronary Syndrome EKG: Chapter 14 PHD6: Chapters 5-8 Quiz-7 |
| 11 4/4 | Cardiac Device & Procedures | LMS Assignments PHD6: Chapters 3 ACLS Written Exam |
| 12 4/11 | Cardiac Assessment Scenarios & Peer-Review Labs | LMS Assignments All previous readings |
| 13 4/18 | Cardiac Assessment Scenarios & Peer-Review Labs | LMS Assignments All previous readings |
| 14 4/25 | Cardiac Assessment Scenarios & Peer-Review Labs | LMS Assignments All previous readings |
| 15 5/2 | Cardiac Assessment Scenarios & Peer-Review Labs Review | LMS Assignments All previous readings Psychomotor Competency Completion |
| Finals Week 5/7 through 5/11 | Summative Cardiac Exam (written and psychomotor) | LMS Assignments All previous readings |

The above schedule is subject to change.

During the Final Examination Week you will be required to be available from 8 AM to 6 PM (regardless of scheduled time in the SMCC course schedule) on Monday (5/7), Wednesday (5/9), and Friday (5/11) to facilitate final examinations and retests.

Course Requirements

Quizzes

There will be **timed** quizzes throughout the semester. **Quizzes will be comprehensive in nature.** They will cover material from on-line modules, lecture, and readings. If a class session is missed the student will not have an opportunity to retake the quiz and will receive a grade of zero (0) for the quiz. On-line quizzes will be completed by the date/time specified in the learning management system. The lowest classroom quiz score will be dropped from grading.

Mid-Term Examination

A multiple choice computer based cognitive examination encompassing all materials covered in the course to this date will be administered. Please see the Program Handbook for examination guidelines.

Blackboard and MyBradyLab Assignments

Prior to class the student will complete an on-line learning assignment for each new topic. The student is required to complete this work by the date and time assigned.

Community Service:

- The student will be required to attend the NREMT EMT (5/13/2017) or Advanced EMT/Paramedic (5/15/2017) examination and serve as an evaluator, assistant, or patient. Failure to complete this assignment will result in a grade of 0% for all assignments.

Peer Review and Psychomotor Skills Competency Portfolio:

During the course the student will be introduced to psychomotor skills that will require the student to practice and perform during the semester. Laboratory time will be provided for the student to complete these skills competencies and peer-review. After the classroom introduction each student must complete the required peer reviews before the final examination period. Utilizing the FSDAP system peer review process each student must be evaluated the minimum number of times. Supervised open lab time is available. Please see the Program Manual for the Laboratory Policies.

The student will be required to complete the following peer reviewed sessions for the course:

| Skill | Peer Reviews | Eureka Score | Instructor Review |
|---|--------------|--------------|-------------------|
| 12-Lead ECG | 5 | 5/5 | 0 |
| Synchronized Cardioversion | 5 | 5/5 | 1 |
| Defibrillation (Unwitnessed Arrest) | 5 | 5/5 | 1 |
| Transcutaneous Pacing | 5 | 5/5 | 1 |
| Medical and Cardiac Physical Assessment | 5 | 5/5 | 1 |

Minimum scoring for each station will be specified in the FSDAP system. Any critical skill missed will result in an automatic failure.

Evaluation by Peer Review: The student must complete all assigned peer reviews. A grade of 100% will be assigned for the completion of the psychomotor competencies. A grade of 0% will be assigned for partial completion of the peer reviews.

Evaluation by Instructor Review: The student must complete all instructor reviews by the last week of the course. There will be a period during finals week to retest any skill that needs to be completed. A student that fails an instructor examination will be required to complete a second set of peer reviews before taking the exam again. If a student fails and instructor review twice, they will receive a 0% for the psychomotor competency.

Formative Scenarios

During this course the student will participate as a team leader and a team member in various peer and instructor reviewed scenarios. **Students must maintain their competency rates in previously learned skills throughout the program.**

Weekly Affective Domain Assessments (90% of affective domain grade)

Students will act and behave as professionals at all times. The students will receive a weekly evaluation through Blackboard based on their classroom behaviors and interactions with program personnel. The lowest score received in any column will be the grade entered for the week. Example: If the student receives a one (1) for preparation but a two (2) in all other categories, he or she will receive a one (1) for the daily grade.

Grading Rubric:

| Score | Attendance | Dress Code | Behavior | Preparation | Participation |
|-------|--|---|---|---|---|
| 2 | Attended class, not late, and did not leave early (includes breaks) | Adhered to assigned dress code | Adheres to EMS Department code of conduct | Student has all assigned equipment and is prepared to utilize it | Student actively and positively participates in all aspects of the day |
| 1 | Left early or tardy (includes breaks) | Minor dress code violation | Warned for code of conduct violation | Student is missing a piece of equipment | Student is reminded to stay on task |
| 0 | Did not attend and failed to follow notification process (counseling session) | Major dress code violation (student sent home and counseling session) | More than one warning or major violation (student sent home and counseling session) | Student missing more than one piece of equipment (counseling session) | Student is reminded more than once to stay on task (student sent home and counseling session) |

Affective Domain Self Evaluations (10% of affective domain grade)

At the mid-point and the end of the course the student will complete a self-evaluation utilizing the Rubric Affective Domain Tool from the 2002 National Guidelines for Educating EMS Instructors, Appendix VI. This will be completed in FSDAP by the date specified.

Summative Final Examination

A multiple choice computer based examination encompassing all materials in the course will be given at the end of the course. **All students must pass the examination with the minimum cut score.** Students that fail to achieve the cut score on the first examination will be required to complete a second examination with a satisfactory grade on the date and time specified in the syllabus.

| Criteria | Grade Entry |
|------------------------|-------------|
| Pass of first attempt | 100% |
| Pass on second attempt | 80% |
| Do not pass exams | 0% |

Final Scenario

The Student will complete a final psychomotor scenario as a Team Lead. **All students must pass the scenario examination with the minimum cut score.** Students that fail to achieve the cut score on the first examination will be required to complete a second scenario examination with a satisfactory grade on the date and time specified in the syllabus.

| Criteria | Grade Entry |
|------------------------|-------------|
| Pass of first attempt | 100% |
| Pass on second attempt | 80% |
| Do not pass exam | 0% |

Learning Management System Access and Log-In:

Computer usage and internet access is a required component of this course. If the student does not have internet access at home, the campus has multiple computer labs available for access. Lack of home access is not an acceptable reason to not complete assignments.

Students will be required to complete assignments through the SMCC learning management systems. Assignments will be posted weekly with expected completion dates on the learning management system.

The SMCC learning management system is accessed by going to <https://my.smccme.edu/ics/>.

To log in

1. **Username** = the student first name + middle initial + last name - WITH NO SPACES AND NO CAPITAL LETTERS (i.e. johnqsmith) - maximum of 20 characters
2. **Password** = the student first initial + the first four letters of the student last name + the last four digits of the student social security # - NO SPACES (i.e. jsmit1234)

If the student cannot log on, please e-mail the instructor that the student are having problems logging in and then contact technical support through the webpage. **The instructor cannot fix access problems; the student must remedy them with the assistance of technical support.**

Required Electronic Formatting:

All materials that are submitted electronically to the instructor must be in the following formats:

- X.doc; X.docx; X.pdf; X.rtf

Any materials submitted in a different format will receive a zero (0).

SMCC E-Mail and Communications

Students are **REQUIRED** to use their SMCC provided e-mail account for this course. ALL communications with the instructors will be through the SMCC address. Students are required to check their SMCC e-mail account at least once daily (Monday-Saturday) and respond to all e-mails from the class instructors upon receipt. The student will contact the help desk for assistance with e-mail access.

How to succeed

1. The student is expected to be prepared for the class session by completing all assigned reading and work assignments for the day. **Keep up with the weekly assigned readings.** This course proceeds at a fast pace. If the student gets behind, it can be a lot of work to keep up.
2. The student is expected to attend all class sessions and be on time. The student will manage their absences, to facilitate their needs. The student can't learn if the student is not here.
3. The student will make up all missed work on their own time.
4. Ask questions in class. If the student doesn't understand something, chances are that others don't understand it either. If the student needs extra help, ask us.
5. The student is expected to dedicate an average of **1-3 hours per credit hour** of time per week outside of class to study, review and complete assignments.
6. The student is entering the healthcare profession and professional behavior is expected at all times. Students with inappropriate behavior will be asked to leave class for the day. Repeated incidents may result in dismissal from class. The student is expected to be respectful of fellow class members, the instructors and the college.
7. In the realm of Emergency Medicine our patients rarely get a second chance. The student want to view the student first opportunity as the student only opportunity to affect the student outcome, study for assessments, exams and quizzes as if there isn't a second chance.

SMCC Paramedic Program Handbook

In addition to this syllabus, the course will be governed by all academic policies of SMCC and the SMCC Paramedic Program Handbook as received in Introduction to Paramedicine.

Student Evaluation and Grading

| | |
|-----|--|
| 10% | Weekly Affective Domain Assessment |
| 10% | Assignments & Quizzes |
| 20% | Mid-term Examination |
| 20% | Summative Final Examination |
| 20% | Peer-Review and Instructor Psychomotor Evaluation Assessment |
| 20% | Final Scenario |

Grading Scale:

| | |
|------|----------|
| A = | 93-100 |
| A- = | 90-92 |
| B+ = | 88-89 |
| B = | 83-87 |
| B- = | 80-82 |
| C+ = | 78-79 |
| C = | 73-77 |
| C- = | 70-72 |
| D+ = | 68-69 |
| D = | 60-67 |
| F = | Below 60 |

To receive credit towards a degree in Paramedicine and meet pre-requisites for other EMSP courses, a student must receive a minimum grade of **B- (80%)** in this course as specified by Maine EMS.

Students that are not achieving at least a **B- (80%)** average or have missed a class before the early alert and academic alert periods will receive an early/academic alert notice from the college.

No late work will be accepted in this course. As computer access is a requirement for this course and provided by the college, students are expected to deliver the work by the assigned time regardless of attendance at the course.

No individual extra credit will be provided in this course.

Text, Tools and / or Supplies

Required Texts:

- (PCP5) Paramedic Care Principles and Practice, 5th Edition, 2016
- (ACLS) Advanced Cardiac Life Support, 2015 Standard
- (EKG) EKG Plain and Simple, 3rd Edition, Ellis, 2012
- SMCC Pharmacology Guide (*Distributed in class*)

Recommended Texts:

- **Handbook of Emergency Cardiovascular Care For Healthcare Providers 2015 Standard** (AHA Handbook of Emergency Cardiovascular Care)
- (PHD6) Pathophysiology of Heart Disease, 6th Edition, Lilly, 2016

Additional Required Equipment

- *Pen or pencil, with materials to take notes on.*
- *Watch*
- *Stethoscope*
- *FISDAP Access*

Special Equipment Note

- Mobile phones and other electronic notification devices will not be used during classroom time. They will be set to vibrate or silent. Answering or making calls, checking e-mail or sending text messages during class time is not permissible.
- Computers may be utilized during class time for note taking and researching materials related to the class lecture or topic. Computers used for any other function during class time are prohibited, without consent of the instructor. The instructor reserves the right to refuse a student the ability to use a computer in class if the student cannot abide by the rules.

Attendance Policy

Snow days and school closings are announced on local radio and television stations and the school website www.smccme.edu. SMCC announces its own closures and it should not be assumed that if local schools are closed that SMCC is closed.

A student that arrives after the scheduled start time of the class is late. A student that leaves class early will also be marked tardy. **An absence will be assigned for accumulation of two late attendances and/or leaving class early and apply towards the attendance policy.**

If the instructor is more than ten (10) minutes late for class, without giving prior notice, the students have a right to leave.

A student may be absent for two (2) full class sessions but should make every effort to attend all classes. **The third session missed will result in the reduction of the student's grade by one full letter grade (Example: An A- becomes a B-).** It is the responsibility of the student to manage their absences accordingly.

The instructors are under no obligation to provide any make up assistance for students that miss a class. The student will be required to learn and perform any skills that they have missed due to tardiness or absence.

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 p.m. following the last day of the class. The student will receive an e-mail to the student e-mail account when course evaluations are available.

ADA Syllabus Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call (207) 741-5798. If the student have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, the student must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

SMCC Pay-for-Print Policy

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the

system when the you've finished the student printing, to prevent unauthorized access to the student account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce the student printing charges, please go to the IT Help tab on My SMCC. If the student have questions about the pay-for-printing policy or the student printing charges, please contact the Help Desk at 741-5696 or send an e-mail to helpdesk@smccme.edu.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Add-Drop Policy

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses (usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct

**Southern Maine Community College
Emergency Medical Services Department**

Syllabus Acknowledgement

Student Name: _____ **Course:** _____ EMSP 175 Advanced Cardiology _____

I have been given a copy of the syllabus for the above listed class, and I have reviewed the syllabus and asked the instructor questions clarifying the expectations for this course. Please read and initial each statement below:

- _____ I have reviewed and understand the course schedule. I understand that the course schedule may change at the discretion of the instructor and a new syllabus will be made available to me upon the change if necessary.
- _____ I have reviewed and understand the student grading and evaluation process. I also understand what is required of me for cognitive, psychomotor, affective and clinical objectives and/or evaluation.
- _____ I understand how to log into the MySMCC portal and/or Blackboard system as needed for the course. I understand this is where my current estimated grade will be maintained for my review.
- _____ I have reviewed and understand the attendance policies for the course.
- _____ I understand what textbook and materials are required for this course.
- _____ I understand that in addition to this syllabus I am also governed by the SMCC code of conduct, SMCC policies as indicated in the current course catalog and compass, clinical handbook and the program handbook all located at www.smccme.edu.
- _____ I have reviewed and understand the ADA Statement.
- _____ I have reviewed and understand the Add-Drop Policy.
- _____ I have reviewed and understand the Withdrawal Policy.
- _____ I have reviewed and understand the Plagiarism Statement.
- _____ I have reviewed and understand the SMCC Pay for Print Policy.
- _____ I have reviewed and understand the process for Course Evaluation.

I acknowledge that I have received the syllabus and that I was afforded an opportunity to ask questions for clarification.

Student Signature

Date

Instructor Signature

Date