Emergency Medical Services Department

Title: Cardiology I  
Catalog Number: EMSP150-01

Lead Instructor: Scott Cook, MS, CCEMTP  
Credit Hours: 3

Office Hours – Location: By Appointment  
Lecture

Email: scook@smccme.edu (preferred contact)

Contact information: Office 207.741.5649

COURSE SYLLABUS

COURSE DESCRIPTION
This course is designed to provide the paramedic student with an understanding of the cardiovascular system including conduction system of the heart, electrocardiography, and beginning treatment of a patient with chest pain. Students will demonstrate use of ECG monitor/defibrillator including defibrillation, non-invasive pacing, and cardioversion. Topics include a review of the anatomy and physiology of the heart and circulatory system, electrophysiology, and assessment of the cardiac patient.

PREREQUISITES - EMSP110

COURSE OBJECTIVES
At the completion of this course, the paramedic student will be able to integrate ECG rhythm recognition to formulate a field impression and begin implementation of a treatment plan for the patient with cardiovascular disease.

After successfully completing the course, the student will be able to:
1. Describe the anatomy of the heart, including the position in the thoracic cavity, layers of the heart, chambers of the heart, location and function of cardiac valves, coronary arteries and veins, and peripheral circulation
2. Identify phases of the cardiac cycle and physiology of the heart.
3. Identify the structure and substructure of the cardiac conduction system.
4. Explain the purpose of ECG monitoring.
5. Correlate the electrophysical and hemodynamic events occurring throughout the entire cardiac cycle with the various ECG waveforms, segments, and intervals.
6. Describe and identify the dysrhythmias originating in the sinus node, the AV junction, the atria, and the ventricles.
7. Identify the major therapeutic objectives in the treatment of the patient with any dysrhythmia.
8. Identify the major mechanical, pharmacological, and electrical therapeutic interventions.
9. Describe the components and functions of transcutaneous pacing, defibrillation, and cardioversion.
10. Describe appropriate history and physical assessment goals for cardiac patients.
11. Describe the components to the 12-Lead ECG including lead placement.
12. Identify the benefits of using the 12-Lead ECG’s.
13. Identify if the patient has ECG evidence of ischemia, injury, or infarction.
14. Describe the evolutionary patterns or indicative changes of myocardial infarction.

**TOPICAL OUTLINE OF INSTRUCTION**

**Methods of Instruction:**
This course will present materials through lectures, discussions, case studies, assigned readings, internet blackboard system, simulations, and practical exercises.

**Class Topics and Schedule Readings:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date:</th>
<th>Topic</th>
<th>Readings</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/20/2016</td>
<td>Introduction to cardiology, cardiac A&amp;P, physiology &amp; innervation of cardiac system</td>
<td>Ellis: Ch 1 &amp; 2</td>
<td>p. 11 &amp; 12</td>
</tr>
<tr>
<td>3</td>
<td>*2/3/2016</td>
<td>Dysrhythmias originating in the SA node</td>
<td>Ellis: Ch 5, 6, &amp; 7</td>
<td>p. 53 – 54, 62 – 64, 78 - 87</td>
</tr>
<tr>
<td>4</td>
<td>*2/10/2016</td>
<td>Dysrhythmias originating in the Atria</td>
<td>Ellis: Ch 8</td>
<td>p. 100 - 108</td>
</tr>
<tr>
<td>5</td>
<td>2/17/2016</td>
<td></td>
<td>Exam #1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2/24/2016</td>
<td>Dysrhythmias originating in the AV junction</td>
<td>Ellis: Ch 9</td>
<td>p. 116 – 123 &amp; in class assignment</td>
</tr>
<tr>
<td>7</td>
<td>*3/2/2016</td>
<td>Dysrhythmias originating in AV blocks</td>
<td>Ellis: Ch 11</td>
<td>p. 156 – 166 &amp; in class assignment</td>
</tr>
<tr>
<td>8</td>
<td>*3/9/2016</td>
<td>Dysrhythmias originating in the ventricles</td>
<td>Ellis: Ch 10</td>
<td>p. 137 – 147 &amp; in class assignment</td>
</tr>
<tr>
<td>9</td>
<td>3/16/2016</td>
<td></td>
<td>Vacation</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>*3/23/2016</td>
<td>Pacemaker rhythms, PEA, defibrillation, transcutaneous pacing, and cardioversion</td>
<td>Ellis: p. 366-379</td>
<td>Assigned in class</td>
</tr>
<tr>
<td>11</td>
<td>3/30/2016</td>
<td></td>
<td>Exam #2</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4/6/2016</td>
<td>Understanding 12 – lead ECG’s</td>
<td>Ellis: Ch 13 &amp; 14</td>
<td>p. 299 – 300 &amp; in class assignment</td>
</tr>
<tr>
<td>13</td>
<td>*4/13/2016</td>
<td>Axis deviation and bundle branch blocks</td>
<td>Ellis: Ch 13 &amp; 14</td>
<td>p. 332 – 333 &amp; in class assignment</td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Topic</td>
<td>Readings</td>
<td>Assignments</td>
</tr>
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<tr>
<td>13</td>
<td>*4/20/2016</td>
<td>Myocardial ischemia and injury (12 lead)</td>
<td>Ellis: Ch 13, 14, &amp; 15</td>
<td>p. 337 – 348 &amp; in class assignment</td>
</tr>
<tr>
<td>14</td>
<td>*4/27/2016</td>
<td>Myocardial ischemia and injury (12 lead)</td>
<td>Ellis: Ch 13, 14, &amp; 15</td>
<td>p. 349 – 359 &amp; in class assignment</td>
</tr>
<tr>
<td>16</td>
<td>5/11/2016</td>
<td>Finals</td>
<td></td>
<td></td>
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</table>

*The above schedule is subject to change.*

**COURSE REQUIREMENTS**

The following is expected from each student that is enrolled in this course:

1. **Attendance & promptness.** Students are expected to be at class and on time, this is a critical component to being a professional.
2. **Personal responsibility & accountability.** A professional completes their assignments on time and is accountable for their actions and behaviors; they do not blame others for their lack of preparation or mistakes, they learn from it! They communicate their needs and concerns in a time appropriate manner.
3. **Dedicated time.** The student **MUST** dedicate outside classroom time to master their skills through use of the practical lab open hours and other means to gain skill mastery.
4. **Integrity.** Professionals have integrity, they own up to mistakes, and worry more about being ethical than being the best.
5. **Respect.** Respect is gained by being competent in practice and working well with others, it is also easier to lose than gain. Students are expected to be respectful of their instructors, guests, each other and themselves. When respect is given, it is also earned.
6. **Teamwork.** Paramedics do not work alone. They are a part of a healthcare team that is only as strong as its weakest link. Your classmates are your team, work together, and learn together! You will have a partner in class you are responsible for each other.
7. **Humility.** A professional paramedic knows when they need more resources and help. If you are in over your head or things aren’t making sense, seek out the help of your classmates and your instructors.

**Quizzes:**

Each week (other than exam weeks) a quiz will be given at the beginning of class covering cardiology topics. Handouts, lectures and assigned readings will all be quizzed. Students may make up a missed quiz if they make arrangements with the instructor to take the quiz prior to the next regularly scheduled class. If the student does not make up the quiz before the next scheduled class, a grade of zero will be entered for the missed quiz. The lowest quiz grade will be dropped.

A student that misses a scheduled examination must make arrangements with the instructor prior to the examination. A student that misses the examination without making arrangements with the instructor will have a grade of zero entered for the missed examination. The examination must be completed before the next regularly scheduled class.

**NOTE:** * before the date indicates a quiz at the beginning of class
Assignments:
Assignments will be from the class textbook and class handouts. Unless noted, all homework assignments are due the week after they are assigned. For instance, homework assigned on Week 2 will be due on Week 3.

Sectional Examinations:
All sectional exams will be administered through Blackboard.

Final Examinations:
A final cumulative written exam will be administered at the end of the semester.

Learning Management System Access & 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** = your first name + middle initial + last name - WITH NO SPACES AND NO CAPITAL LETTERS (i.e. johnqsmith) - maximum of 20 characters
2. **Password** = your first initial + the first four letters of your last name + the last four digits of your social security # - NO SPACES (i.e. jsmit1234)

If you cannot log on, please e-mail the instructor that you 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.**

SMCC E-Mail & 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 you get 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. You can’t learn if you are not here.
3. The student will make up all missed work on their own time.
4. Ask questions in class. If you don’t understand something, chances are that others don’t understand it either. If you need extra help, ask us.

5. The student is expected to dedicate time outside of class to study, review and complete assignments.

6. You are 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. You want to view your first opportunity as your only opportunity to affect your 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

30% Weekly quizzes
40% Written exams (20% each)
25% Final Exam
5% Homework, Attendance, and Participation

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- in this course.

Students that are not achieving at least a B- 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:

Recommended Texts:

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• **Student Workbook for Nancy Caroline's Emergency Care in the Streets, 7th Edition.** American Academy of Orthopaedic Surgeons (AAOS), Nancy L. Caroline - ISBN: 978-0-76-374412-0

**Additional Required Equipment**

- Pen or pencil, with materials to take notes on.

**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 & school closings are announced on local radio and television stations and the school website [www.smccme.edu](http://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 2 CLASSES FOR ONCE A WEEK MEETING,** but should make every effort to attend all classes. The 3rd class 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 PM following the last day of the class. You will receive an email to your student email 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 you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you 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

Per Page Costs
Each semester students receive a $20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The cost varies depending upon page size and whether printing is done in black and white or color.

a. There is a $0.10 per page fee for standard 8.5" by 11" black and white documents.
b. The reverse sides of duplex (double-sided) documents are free.
c. There is a $.50 per page fee for standard 8.5" by 11" color documents.
d. There is a $.20 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) black and white documents.
e. There is a $1.00 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) color documents.

Duplex charges (printing on both sides of a page) work in the following fashion: One page is $0.10, two pages are $0.10, three pages are $0.20, and four pages are $0.20, etc. The flipsides are free, but another sheet of paper is $0.10. Please be aware that a document with any color at all (when printed to a color printer) will by default be printed in color. You are responsible for setting the print job to print black and white if you do not need color. For directions, please go to the IT Help tab in My SMCC.

How does it work?
The College’s pay-for-print system monitors printing on all printers (including those in general access labs, library printers, the Academic Achievement Center, Noisy Lounge and technology labs). 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.

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.

Why is SMCC charging for printing?
The pay-for-print system is an effort to control escalating printing costs. Charging for printing helps offset the increasing cost of supplies and encourages students to conserve resources. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an email to helpdesk@smcme.edu.

Be sure to log OUT of the system when you’ve finished your printing, to prevent unauthorized access to your 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. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Enrollment Service Center (no phone calls, please). The designation “W” will appear on the transcript after a student has officially withdrawn.
course withdrawal is an uncompleted course and may adversely affect financial aid eligibility. Failure to attend or ceasing to attend class does not constitute withdrawal from the course. There is no refund associated with a withdrawal.

**PLAGIARISM STATEMENT**
Adherence to ethical academic standards is obligatory. Cheating is a serious offense, whether it consists of taking credit for work done by another person or doing work for which another person will receive credit. Taking and using the ideas or writings of another person without clearly and fully crediting the source is plagiarism and violates the academic code as well as the Student Code of Conduct. If it is suspected that a student in any course in which s/he is enrolled has knowingly committed such a violation, the faculty member should refer the matter to the College’s Disciplinary Officer and appropriate action will be taken under the Student Code of Conduct. Sanctions may include suspension from the course and a failing grade in the course. Students have the right to appeal these actions to the Disciplinary Committee under the terms outlined in the Student Code of Conduct.

**SMOKE- AND TOBACCO- FREE POLICY**
Starting on August 1, 2015, the below policy regarding smoke and tobacco use will be in effect. Please take time to review the [Smoke- and Tobacco-Free Policy FAQ’s](https://my.smccme.edu/ICS/My_Maine_Guide/Smoke_-_and_Tobacco_-_Free_Initiative.jnz) to help answer any questions that you may have about this policy.

**Smoke- and Tobacco- Free Policy**
The use, sale, distribution or advertisement of tobacco is strictly prohibited on Southern Maine Community College property, including buildings, parking lots, grounds, and privately or publicly owned vehicles on those grounds, unless specifically authorized by the College, beginning August 1, 2015.

“Tobacco” includes but is not limited to any cigarette, cigar, other smoking tobacco, or any electronic smoking device that produces vapor of any kind, as well as smokeless tobacco, dip, chew or snuff in any form.

Students who fail to comply may be fined or referred for disciplinary action under the Student Code of Conduct. Employees who fail to comply may be subject to disciplinary action as outlined in the Collective Bargaining Agreements (CBA). Others who fail to comply may be removed from College property.

Southern Maine Community College  
Emergency Medical Services Department

Syllabus Acknowledgement

Student Name: ________________________________  
Course: 2016 – Spring – EMSP150

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