



**QUINSIGAMOND**  
Community College

# **ALH 134: Phlebotomy/EKG Technician Certificate – Course Description, Topics, Learning Objectives**

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2012-2013  
 QUINSIGAMOND COMMUNITY COLLEGE  
 NEW COURSE PROPOSAL

|  |                                  |
|--|----------------------------------|
| Course Discipline/Division: Allied Health/ Healthcare  |                                  |
| Course Number: ALH 134   |                                  |
| Course Name: Phlebotomy/EKG Technician   |                                  |
| Prerequisites and/or corequisites (confer with affected department coordinator):   |                                  |
| CIP code (check with IRaP Office): 51.1009   |                                  |
| Effective Term/year: Fall 2013   |                                  |
| Give a rationale for the new course. Be sure to indicate whether this course replaces another course. This course is required for completion of the Phlebotomy/EKG Technician Certificate.   |                                  |
| Is the course content similar to other courses now offered? Yes ___ No <u>X</u><br>If yes, attach a statement for the coordinator of the department offering the similar course.   |                                  |
| Please indicate if this course will serve as any of the following types of electives<br><input checked="" type="checkbox"/> Elective<br><input type="checkbox"/> Discipline specific (name the discipline)<br><input type="checkbox"/> Program specific (name the program)<br><input type="checkbox"/> Multiple perspective (confer with the Liberal Arts Coordinator) |                                  |
| Is this course required for a program? If yes, submit a separate Program Revision Proposal or New Program Proposal. Yes  |                                  |
| Expected enrollment per term: 24   | Expected enrollment per year: 48 |
| Will any of the following be required:<br><p style="text-align: center;">Additional staff <u>X</u>    Additional space <u>X</u>    Additional equipment ___</p> Provide a rationale for any needs indicated above and include approximate cost of equipment.<br>Adjunct faculty<br>Classroom at TEC to be used   |                                  |
| Library print and non-print resources in support of this course: \$500   |                                  |

## Course Materials

|  |              |               |
|--|--------------|---------------|
| Course number: ALH 134   |              |               |
| Course name: Phlebotomy/EKG Technician   |              |               |
| Credits: 3   |              |               |
| Lecture Hours: 45  | Lab hours: 0 | Clinic Hours: |
| <p>General course description and prerequisites (as it will appear in the catalog):<br/>           This course provides an introduction to the theory, techniques and roles of a phlebotomist and electrocardiogram (EKG) technician. Students learn phlebotomy skills, including skin puncture, venipuncture, blood collection, and quality assurance. Additional topics include infection control, medical terminology, quality assurance, principles of venipuncture, specimen handling, basic hematology and basic anatomy of the venous system. Students learn the cardiovascular system as it relates to the performance of an EKG. Students gain knowledge in basic EKG tracing, rate, rhythm, common heart abnormalities and the use and function of the EKG machine.</p>  |              |               |
| <p>All required texts and paperbacks, including information on publisher and edition used (provide a suggested text):<br/>           Phlebotomy Essentials. 5th Edition. R.Mcall, C. Tankersley; Lippincott:2012<br/>           ISBN-13: 978-1-605-476377</p> <p>Rapid Interpretation of EKG's<br/>           ISBN: 978-0-91291-206-6</p>  |              |               |
| <p>Instructional Objectives (list):</p> <ol style="list-style-type: none"> <li>1. Identify the health care delivery system and medical terminology.</li> <li>2. Discuss infection control and safety.</li> <li>3. Understand the anatomy the venous and cardiovascular systems.</li> <li>4. Associate the major areas / departments of the clinical laboratory with the laboratory tests ordered to evaluate a patient's pathologic condition / illness.</li> <li>5. Demonstrate understanding of the importance of specimen collection in the overall patient care system.</li> <li>6. Understand collection equipment, various types of additives used, special precautions necessary and substances that can interfere in clinical analysis of blood constituents.</li> <li>7. Review proper techniques to perform venipuncture and capillary puncture.</li> <li>8. Discuss errors that can significantly alter results.</li> <li>9. Demonstrate understanding of quality assurance in phlebotomy.</li> <li>10. Demonstrate understanding of the basic concepts of communications, personal and patient interaction, stress management, professional behavior and legal implications of the work environment.</li> <li>11. Identify all pertinent anatomic and two-dimensional cardiac structures in the normal heart, including the coronary arteries and wall segments, and define the function of each structure.</li> <li>12. Discuss normal hemodynamic parameters, including intracardiac pressure and oxygen saturation.</li> <li>13. Identify the electrophysiological pathways, their functions, and the normal QRS complex and it's relation to mechanical systole and diastole.</li> </ol> |              |               |
| <p>Teaching procedures: (provide suggested teaching methodology):<br/>           Lecture<br/>           Discussion<br/>           Video<br/>           Demonstrations</p>  |              |               |
| <p>Course topics and/or assignments and/or required and/or supplemental reading (provide a list of suggested course topics):</p>   |              |               |

Other information:

- Suggested basis for student grading and criteria for evaluating student performance

Quizzes        50%

Exam            25%

Final Exam    25%

- Suggested attendance policy

More than 3 absences will require a conference in order to continue the course.

Five absences are an automatic failure.

Please submit a syllabus for this new course to your dean.

See attached.

List the Student Learning Outcomes for this course in the table below. Recommendations for writing SLOs can be found in the *General Information for Academic Affairs Proposals* document that is available on the QCC's Intranet under Frequently Used Forms (Academic Governance Forms).

COURSE STUDENT LEARNING OUTCOMES FOR (insert course number and name)

Upon completion of the course, students will be able to:

|    |   |
|----|---|
| 1  | Identify the health care delivery system and medical terminology.   |
| 2  | Discuss infection control and safety.   |
| 3  | Discuss basic understanding of the anatomy and physiology of body systems.  |
| 4  | Associate the major areas / departments of the clinical laboratory with the laboratory tests ordered to evaluate a patient's pathologic condition / illness.                              |
| 5  | Understand of the importance of specimen collection in the overall patient care system.   |
| 6  | Discuss knowledge of collection equipment, various types of additives used, special precautions necessary and substances that can interfere in clinical analysis of blood constituents.   |
| 7  | Discuss proper techniques to perform venipuncture and capillary puncture.   |
| 8  | Review knowledge of pre-analytical errors that can significantly alter results.   |
| 9  | Demonstrate understanding of quality assurance in phlebotomy.   |
| 10 | Discuss understanding of the basic concepts of communications, personal and patient interaction, stress management, professional behavior and legal implications of the work environment. |
| 11 | Identify all pertinent anatomic and two-dimensional cardiac structures in the normal heart, including the coronary arteries and wall segments, and define the function of each structure. |
| 12 | Identify the electrophysiological pathways, their functions, and the normal QRS complex and it's relation to mechanical systole and diastole.   |

How does the course support general education? Using the chart below, indicate the degree or level of connection between the course and outcome as indicated here.

I – Introductory/Background – There is an indirect relationship between the course and the outcome. The outcome itself is not the focus of the course but at least one element of the course serves as a building block to the achievement of the final outcome. For example, course elements may provide the knowledge, skills or attitudes necessary for the ultimate achievement of the outcome.

M – Intermediate/Transitional - There is more of a direct relationship between the course and the outcome than Introductory. A mixture of course elements supports the final achievement of the outcome, but the final integration of knowledge, skills and attitudes necessary for its achievement is not accomplished in this course. For example, knowledge, skills and/or attitudes (at least 2 of the 3) required for achievement of the outcome may be the focus of the course or course element, but the integration of all three is not.

E – Emphasized – There is a direct relationship between the course and the outcome. At least one element of the course focuses specifically on the complex integration of knowledge, skills and attitudes necessary to perform the outcome.

| CONNECTION OF (insert course number and name) TO GENERAL EDUCATION STUDENT LEARNING OUTCOMES   | I,M,E |
|--|-------|
| Communication Skills: Students will write and speak effectively.   | E     |
| Information Literacy: Students will locate, evaluate and apply reliable and appropriate information.   | E     |
| Quantitative Reasoning: Students will apply the concepts and methods of mathematics to solve problems.   | E     |
| Scientific Reasoning: Students will relate scientific methods of inquiry to the acquisition of knowledge.  | M     |
| Technical Literacy: Students will utilize computer and emerging technologies effectively.  | E     |
| Aesthetics: Students will appreciate the variety of human experiences as expressed through the arts.   | E     |
| Multiple Perspectives: Students will demonstrate knowledge and appreciation of diverse cultures.   | E     |
| Ethics: Students will develop an awareness of personal obligations and responsibilities in one's community of influence.                           | E     |
| Impact of Technology: Students will reflect on the impact of scientific and technological advances on the individual, society and the environment. | E     |
| Civic Literacy: Students will demonstrate awareness of the responsibilities of local, national and international citizenship.                      | M     |

Quinsigamond Community College  
Phlebotomy/EKG Technician ALH 134-3Credits

**Course Description:**

This course provides an introduction to the theory, techniques and roles of a phlebotomist and electrocardiogram (EKG) technician. Students learn phlebotomy skills, including skin puncture, venipuncture, blood collection, and quality assurance. Additional topics include infection control, medical terminology, quality assurance, principles of venipuncture, specimen handling, basic hematology and basic anatomy of the venous system. Students learn the cardiovascular system as it relates to the performance of an EKG. Students gain knowledge in basic EKG tracing, rate, rhythm, common heart abnormalities and the use and function of the EKG machine.

**Course Objectives:**

Upon completion, the student will successfully:

1. Identify the health care delivery system and medical terminology.
2. Discuss infection control and safety.
3. Understand the anatomy the venous and cardiovascular systems.
4. Associate the major areas / departments of the clinical laboratory with the laboratory tests ordered to evaluate a patient's pathologic condition / illness.
5. Demonstrate understanding of the importance of specimen collection in the overall patient care system.
6. Discuss the collection equipment, various types of additives used, special precautions necessary and substances that can interfere in clinical analysis of blood constituents.
7. Review proper techniques to perform venipuncture and capillary puncture.
8. Demonstrate knowledge of errors that can significantly alter results.
9. Demonstrate understanding of quality assurance in phlebotomy.
10. Demonstrate understanding of the basic concepts of communications, personal and patient interaction, stress management, professional behavior and legal implications of the work environment.
11. Identify all pertinent anatomic and two-dimensional cardiac structures in the normal heart, including the coronary arteries and wall segments, and define the function of each structure.
12. Discuss normal hemodynamic parameters, including intracardiac pressure and oxygen saturation.
13. Identify the electrophysiological pathways, their functions, and the normal QRS complex and it's relation to mechanical systole and diastole.

**Teaching Strategies:**

Lecture  
Discussion  
Video  
Demonstrations

**Evaluation Methods:**

|            |     |
|------------|-----|
| Quizzes    | 50% |
| Exam       | 25% |
| Final Exam | 25% |

There are no make up quizzes or exams.  
2 missed quizzes or missing the final is an automatic failure.  
The QCC course completion grade is 73% minimum.

**Attendance Policy:**

More than 3 absences will require a conference in order to continue the course.

Five absences are an automatic failure.

**Disability Statement:**

Any individual with a physical or mental impairment that substantially limits that individual in some major life activity and requires an accommodation must provide documentation of the disability to the Director of Disability Services. The Director of Disability Services will make a determination whether or not accommodations are needed. Once this determination is made, the Director will then consult with the faculty member on appropriate accommodation(s). A student with a documented disability is encouraged to register with Disability Services at:

Disability Services Office  
Quinsigamond Community College, Room 246A  
670 West Boylston St.  
Worcester, MA 01606-2092

PHONE: 508-854-4471      TTY: 508-854-4524      FAX: 508-852-6943  
E-mail: [disabilityservices@qcc.mass.edu](mailto:disabilityservices@qcc.mass.edu)

Office Hours: Monday - Thursday: 8 am to 6 pm; Friday: 8 am to 5 pm

**Inclement weather:**

Weather related emergencies are also broadcast on local radio and television stations. The day class should call after 7:00 a.m. the morning of the weather related emergency and follow the instructions given. The evening class should call after 3:00 p.m. the afternoon of the weather related emergency and follow the instructions given.

**Required Reading:**

Phlebotomy Essentials. 5th Edition. R.Mcall, C. Tankersley; Lippincott:2012  
ISBN-13: 978-1-605-476377

Rapid Interpretation of EKG's  
ISBN: 978-0-91291-206-6

**Course Outline:**

- Week 1                    Introduction - overview  
Chapter 1 - Phlebotomy: Past and Present and the Healthcare Setting  
Serum, Plasma, Whole Blood & Tubes & Lab Panels  
Worksheets: Blood, Order of Draw
- Week 2                    Chapter 7 - Blood Collection Equipment, Additives and Order of Draw  
Chapter 8 - Venipuncture Procedures  
Palpating Veins  
Serum, Plasma, Whole Blood & Tubes & Lab Panels  
VIDEO: Venipuncture technique
- Week 3                    **Quiz #1** (Ch 7 & 8)  
Chapter 3 - Infection Control, Safety, First Aid and Personal Wellness  
VIDEO: Infection Control & Safety
- Week 4                    **Quiz #2** (Ch 3)  
Chapter 4 - Medical Terminology  
Chapter 5 – Anatomy & Physiology Overview  
Worksheets: A&P  
VIDEO: Nova 1 & 2
- Week 5                    **Quiz #3:** (Ch 1 & 4)  
Chapter 6  
Worksheets: Heart, Circulation  
VIDEO: Nova 3, Heart Attacks
- Week 6                    **Quiz #4:** (Ch 5)  
Chapter 9 – Pre laboratory test analysis considerations
- Week 7                    **Quiz #5:** (Ch 6)  
Chapter 10 - Capillary Puncture Equipment and Procedures  
Chapter 11 - Special Considerations and Point-of-Care Testing
- Week 8                    **Quiz #6:** (Ch 9 & 11)  
Chapter 14 - Computers and Specimen Handling and Processing  
VIDEO: Nova 4  
Barcodes
- Week 9                    **Quiz #7**  
Chapter 13 - Nonblood Specimens and Tests  
VIDEO: Bloodborne Pathogen Standard
- Week 10                    **Quiz #8** (Self test on tubes)  
Chapter 2 - Quality Assurance and Legal Issues  
Expectations for Completion
- Week 11                    Chapter 12 - Arterial Puncture Procedures  
**Phlebotomy Final Exam**



- Week 12            Introduction to EKG's and Course Material Review  
                      History of EKG's  
                      Definition of EKG Technician  
                      Role of EKG Technician  
                      Physical and Psychosocial Needs of the Patients  
                      HIPPA  
                      Anatomy and Physiology of the Heart - Review
- Week 13            **Quiz #9**  
                      Basic EKG Interpretation: P wave, QRST segment, T wave  
                      Normal EKG Pattern: Lead Placement, Rhythm Strip, EKG Tracing  
                      **Quiz #10**  
                      Abnormal EKG's: Sinus Dysrhythmias, Atrial Fibrillation/Atrial Flutter, SVT,  
                      PAC's  
                      Block, PVC's  
                      Diseases of the Heart: Myocardial Infarction, Ischemia, Injury, Infarction,  
                      Pericarditis  
                      Abnormal EKG's: Ventricular Dysrhythmias, Couplets, Triplets, Paced Beats, Heart
- Week 14            **EKG Final Exam**  
                      Review for final exam  
                      Miscellaneous Effects: Pulmonary, Electrolytes, Medications, Artificial  
                      Pacemakers, Heart Transplants
- Week 15            **Final Exam**