



Clemson University - Center for Corporate Learning  
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### Education & Training Plan

## Clinical Medical Assistant Certificate Program with Clinical Externship

Student Full Name: \_\_\_\_\_

Start Date: \_\_\_\_\_ End Date: \_\_\_\_\_

**Program includes National Certification & a Clinical Externship Opportunity**  
**Mentor Supported**

### Clinical Medical Assistant Certificate Program with Clinical Externship

Course Code: CLEM-CM 02  
Program Duration: 6 Months  
Contact Hours: 780  
Student Tuition: \$3,950

#### **The Clinical Medical Assisting Profession**

The Clinical Medical Assisting program is designed to prepare students to function as professionals in multiple healthcare settings. Medical assistants with a clinical background perform various clinical tasks including assisting with the administration of medications and with minor procedures, performing an EKG electrocardiogram, obtaining laboratory specimens for testing, educating patients, and other related tasks. Job opportunities are prevalent with physician's offices, clinics, chiropractor's offices, hospitals and outpatient facilities.

#### **The Clinical Medical Assisting Program**

This program prepares students to assist physicians by performing functions related to the clinical aspects of a medical office. Instruction includes preparing patients for examination and treatment, routine laboratory procedures, pharmacology, taking and documenting vital signs, technical aspects of phlebotomy, the 12-lead EKG and the cardiac life cycle.

The purpose of the Clinical Medical Assisting program is to prepare students to assist physicians by performing functions related to the clinical aspects of a medical office. This course covers the following key areas and topics:

- Clinical responsibilities of the medical office - assisting the physician with patient related care
- Preparing patients for examination and treatment, routine procedures and diagnostic testing
- HIPAA, patient confidentiality, legal aspects of healthcare and regulatory patient care issues
- Recording and taking of vital signs, blood pressure, and other patient care items related to the physician office visit

- Review and administration of medications, allergies & other pharmacology related items
- Laboratory procedures, phlebotomy and the proper techniques required to collect specimens for laboratory analysis
- Cardiology and the proper placement of leads when taking a 12 lead EKG

### **Education and National Certifications**

- Students should have or be pursuing a high school diploma or GED.
- There are no state approval and/or state requirements associated with this program.
- There are several National Certification exams that are available to students who successfully complete this program:
  - **National Healthcareer Association (NHA) Certified Clinical Medical Assistant (CCMA) Exam**
  - **American Society of Phlebotomy Technician (ASPT) Phlebotomy Technician (CPT) Exam**
  - **National Healthcareer Association (NHA) Certified Phlebotomy Technician (CPT) Exam**
  - **National Healthcareer Association (NHA) Certified EKG Technician (CET) exam**
- In addition to facilitating entry-level clinical medical assisting related positions, this course is ideal for students interested in pursuing a future formal Certified Medical Assistant (CMA), Nursing (LPN) or a Nursing (RN) program.

### **Clinical Medical Assisting Detailed Course Information:**

- Responsibilities of the clinical medical assistant and introduction to healthcare facilities
- Medical terminology, anatomy and physiology, circulation of the heart and blood vessels
- Care & safety of patients, medical & legal aspects of care, confidentiality and HIPAA
- Effective verbal and non-verbal communication, interpersonal skills and human behavior
- Aseptic techniques, infection prevention, universal precautions, proper use and disposal of biohazards and sharps
- Documenting patient medical histories, updating patient medical files, vital signs and documentation
- Applying sterile dressings, preparing patients for x-rays, performing various injections, administering oral medications, instructing patients on the proper usage of medications
- Phlebotomy, venipunctures and capillary sampling, collecting specimens and point of care testing
- Performing 12 lead EKGs and EKG strip analysis (P,Q,R,S,T wave form)
- Role of the EKG technician
- Function of the EKG department in a variety of settings (hospital, clinic, office, mobile service)
- Medical terminology related to electrocardiography
- Care and safety of patients including medical and legal aspects of patient care
- Anatomy and physiology of the cardiovascular system
- Electrophysiology, the conduction system of the heart, and the cardiac cycle
- Circulation of blood through the heart and vessels
- Lead placement for 12-lead electrocardiography
- Basic EKG interpretation of normal rhythms and arrhythmias
- EKG troubleshooting including recognizing artifacts
- Waves and measurements
- EKG strip analysis (P,Q,R,S,T wave-form interpretation)
- Identification of rhythms using the 12-lead EKG
- Pacemakers

- Holter monitoring and the echocardiogram
- The history of Phlebotomy and the roles and responsibilities of a Phlebotomy Technician
- Laboratory operations (e.g. safety, quality control, quality assurance, laboratory law, ethics and regulatory issues)
- Anatomy and physiology of the circulatory system and anatomy of the hand, leg & foot – including arteries and veins
- Universal precautions – safety protocols, infection control and medical asepsis
- Specimen collection, processing, handling, documentation and transportation
- Venipunctures and skin puncture practice, syringe practice, heel puncture, protocol, syringe draws, etc.

### **National Certification**

Upon successful completion of this Clemson University Clinical Medical Assistant program, students would be eligible to sit for the National Healthcareer Association (NHA) Certified Clinical Medical Assistant (CCMA) national certification exam as well as other EKG and Phlebotomy Technician exams. Although there are no state approval, state registration or other state requirements for this program, students who complete this Clinical Medical Assistant program at Clemson University will be prepared and are eligible to sit for this national certification exam. Students who complete this program are encouraged to complete the clinical externship option with their program. Students who complete this program can and do sit for the NHA CCMA national certification exam and are qualified, eligible and prepared to do so. Clemson University works with each student to complete the exam application and register the student to take their national certification exam.

### **Clinical Externship / Hands on Training / Practicum**

Although not a requirement of this program, once students complete the Clinical Medical Assistant program they have the ability to participate in a clinical externship and/or hands on practicum so as to practice the skills necessary to perform the job requirements of a Clinical Medical Assistant. Students will be assisted with completing a resume and/or other requirements necessary to work in a hospital, physicians practice, clinic and/or with other healthcare organizations. All students who complete this program are eligible to participate in an externship and will be placed in a healthcare organization near their location. Clemson University works with national healthcare organizations and has the ability to place students in clinical externship opportunities nationwide.

**Clemson University contact:** If students have any questions regarding this program including national certification and externships, **they should call Juanita Durham of Clemson University at 864.656.3984 or via email at [jdrhm@clmson.edu](mailto:jdrhm@clmson.edu).**

Note: No refunds can be issued after the start date published in your Financial Award document.



## About Clemson University!

Clemson Online, a unit reporting directly to the Provost, works closely with leadership teams across the University to develop, market, and deliver top-quality courses and programs in blended and online formats. The office provides vision, leadership, coordination, and expertise in support of faculty design, delivery, and evaluation of technology-enhanced, blended, and fully online courses and instructional materials. Dynamic, transformative, and unique eLearning opportunities characterize Clemson's approach to online teaching and learning.

**Our Mission:** Clemson Online provides strategic leadership for online education, emphasizing innovative teaching and superior learning outcomes to maximize student success in 21st-century academic and professional contexts.

**Our Vision:** Clemson Online will define the public web-grant university through measurable achievements in online education, research, and service.

The office is committed to pursuing strategic opportunities, providing supportive resources, promoting superior educational quality, and ensuring faculty involvement and responsibility in shaping Clemson's online future.



## Clemson University and Pearson Education

Clemson University's eLearning programs were developed in partnership with Pearson Education to produce the highest quality, best-in-class content and delivery necessary to enhance the overall student learning experience, boost understanding and ensure retention. Pearson Education is the premier content and learning company in North America offering solutions to the higher education and career training divisions of colleges and universities across the country aimed at driving quality education programs to ensure student success. Please visit us at [www.pearson.com](http://www.pearson.com).

## About Pearson Education

Welcome to Pearson. We have a simple mission: to help people make more of their lives through learning. We are the world's leading learning company, with 40,000 employees in more than 80 countries helping people of all ages to make measurable progress in their lives. We provide a range of education products and services to institutions, governments and direct to individual learners, that help people everywhere aim higher and fulfil their true potential. Our commitment to them requires a holistic approach to education. It begins by using research to understand what sort of learning works best, it continues by bringing together people and organizations to develop ideas, and it comes back round by measuring the outcomes of our products.

## Lesson Checklist

Each lesson has a prescribed, detailed checklist of activities for successful completion of the lesson. This includes lesson objectives, readings, and recommended assignments. Although assignments are optional, the instructor will grade and provide feedback on submitted assignments.

## Course Materials:

- Clinical Medical Assisting: Foundations and Practice
- EKG Technician Program Standard, Custom Edition Package - Book package includes EKG Technician Program PowerPoint Slides
- EKG Technician Program Standard Student Workbook
- EKG Technician Program Advanced, Custom Edition Package - Book package includes EKG Technician Program: Advanced PowerPoint Slides
- Phlebotomy Handbook: Blood Specimen Collection From Basic to Advanced, 8e
- Phlebotomy Technician Program Student Workbook, Custom Edition

## Module/Lesson Structure

The Clinical Medical Assisting Program is divided into four main content modules. Each module contains lesson presentations to view. These lesson presentations are the “lectures” which, along with the textbook readings and resources, will help you learn the material. The lesson presentations address a variety of learning styles and preferences using text, audio, video, etc. Each lesson contains at least one *Check Your Understanding* interactive self-assessment that will help you gauge your comprehension of that lesson’s content. Many lessons include supplemental resources such as videos, learning activities, and flashcards. Using these additional materials will deepen your understanding of the content.

## Course Overview

### CMA Module 1 – Introduction to the Clinical Medical Assisting Profession

- Lesson 1 The Medical Assisting Profession
  - Reading Assignment: Chapter 1 (pp. 2-13)
- Lesson 2 Interpersonal Communication
  - Reading Assignment: Chapter 2 (pp. 16-26)
- Lesson 3 Patient-Centered Care
  - Reading Assignment: Chapter 3 (pp. 27-35)
  - Reading Assignment: Chapter 4 (pp. 36-46)

### CMA Module 2 – The Clinical Environment

- Lesson 4 The Clinical Environment: Safety and the Patient Encounter
  - Reading Assignment: Chapter 5 (pp. 48-59)
  - Reading Assignment: Chapter 6 (pp. 60-77)
- Lesson 5 Medical and Surgical Asepsis
  - Reading Assignment: Chapter 7 (pp. 78-94)
  - Reading Assignment: Chapter 8 (pp. 95-115)
- Lesson 6 Pharmacology and Medication Administration
  - Reading Assignment: Chapter 9 (pp. 116-146)
- Lesson 7 Vital Signs
  - Reading Assignment: Chapter 10 (pp. 147-175)
- Lesson 8 Minor Surgery
  - Reading Assignment: Chapter 11 (pp. 176-199)

**CMA Module 3 – Medical Specialties and Testing**

- Lesson 9 Medical Imaging
  - Reading Assignment: Chapter 16 (pp. 306-323)
- Lesson 10 Pulmonary System and Testing
  - Reading Assignment: Chapter 18 (pp. 363-385)
- Lesson 11 EENT
  - Reading Assignment: Chapter 19 (pp. 386-413)
- Lesson 12 Immunology and Allergies
  - Reading Assignment: Chapter 20 (pp. 414-425)
- Lesson 13 Dermatology
  - Reading Assignment: Chapter 21 (pp. 426-445)
- Lesson 14 Endocrinology
  - Reading Assignment: Chapter 22 (pp. 446-456)

**CMA Module 4 – Medical Specialties**

- Lesson 15 Emergency Care
  - Reading Assignment: Chapter 23 (pp. 458-498)
- Lesson 16 Gastroenterology and Nutrition
  - Reading Assignment: Chapter 24 (pp. 499-528)
- Lesson 17 Orthopedics and Physical Therapy
  - Reading Assignment: Chapter 25 (pp. 529-562)
- Lesson 18 Obstetrics and Gynecology
  - Reading Assignment: Chapter 26 (pp. 563-588)
- Lesson 19 Pediatrics
  - Reading Assignment: Chapter 27 (pp. 589-608)
- Lesson 20 Neurology
  - Reading Assignment: Chapter 28 (pp. 609-626)
- Lesson 21 Mental Health
  - Reading Assignment: Chapter 29 (pp. 627-643)
- Lesson 22 Oncology
  - Reading Assignment: Chapter 30 (pp. 644-654)
- Lesson 23 Geriatrics
  - Reading Assignment: Chapter 31 (pp. 655-665)
- Lesson 24 Alternative Medicine
  - Reading Assignment: Chapter 32 (pp. 668-678)

**EKG Module 1**

- Lesson 1 – Coronary Anatomy and Physiology
  - Reading Assignment: Chapter 1: pp. 1-12
- Lesson 2 – Electrophysiology
  - Reading Assignment: Chapter 2: pp. 13-34
- Lesson 3 – A Review of Lead Morphology and Placement
  - Reading Assignment: Chapter 3: pp. 35-46
- Lesson 4 – The Technical Aspects of the EKG
  - Reading Assignment: Chapter 4: pp. 47-60

**EKG Module 2**

- Lesson 5 – Calculating the Heart Rate
  - Reading Assignment: Chapter 5: pp. 61-72
- Lesson 6 – How to Interpret a Rhythm Strip
  - Reading Assignment: Chapter 6: pp. 73-78
- Lesson 7 – A Review of Rhythms Originating from the Sinus Node

- Reading Assignment: Chapter 7: pp. 79-98
- Lesson 8 – A Review of Rhythms Originating from the Atria
  - Reading Assignment: Chapter 8: pp. 99-119

### **EKG Module 3**

- Lesson 9 – A Review of Rhythms Originating in the Av Junction
  - Reading Assignment: Chapter 9: pp. 121-132
- Lesson 10 – Rhythms Originating on the Ventricles
  - Reading Assignment: Chapter 10: pp. 133-155
- Lesson 11 – AV Blocks
  - Reading Assignment: Chapter 11: pp. 157-176
- Lesson 12 – Performing Rhythms Practice Strips
  - Reading Assignment: Chapter 12: pp. 177-302

### **EKG Module 4**

- Lesson 13 – A Review of Artificial Pacemakers
  - Reading Assignment: Chapter 13: pp. 303-317
- Lesson 14 – Diagnostic Electrocardiography
  - Reading Assignment: Chapter 14: pp. 319-345

### **EKG Module 5 – Advanced**

- Lesson 15 – How to Interpret a 12-Lead EKG
  - Reading Assignment: Chapter 1: pp. 1-36
- Lesson 16 – Myocardial Infarction
  - Reading Assignment: Chapter 2: pp. 37-71
- Lesson 17 – Cardiac Medications and Electrical Therapy
  - Reading Assignment: Chapter 4: pp. 103-109

### **PHLEBOTOMY Module 1 – Overview and Safety in Phlebotomy Procedures**

- Lesson 1 – Phlebotomy Practice and Quality Management
  - Reading Assignment: Chapter 1 (pp. 1-38)
- Lesson 2 – Communication, Computerization, and Documentation
  - Reading Assignment: Chapter 2 (pp. 39-80)
- Lesson 3 – Professional Ethics, Legal, and Regulatory Issues
  - Reading Assignment: Chapter 3 (pp. 81-100)
- Lesson 4 – Infection Control
  - Reading Assignment: Chapter 4 (pp. 101-137)
- Lesson 5 – Safety and First Aid
  - Reading Assignment: Chapter 5 (pp. 138-157)

### **PHLEBOTOMY Module 2 – Overview of Medical Terminology, Anatomy, and Physiology**

- Lesson 6 – Medical Terminology, Anatomy, and Physiology of Organ Systems
  - Reading Assignment: Chapter 6 (pp. 158-173)
- Lesson 7 – Anatomy and Physiology of Organ Systems
  - Reading Assignment: Chapter 6 (pp. 173-206)
- Lesson 8 – The Cardiovascular and Lymphatic Systems
  - Reading Assignment: Chapter 7 (pp. 207-248)

### **PHLEBOTOMY Module 3 – Phlebotomy Specimen Collection Procedures**

- Lesson 9 – Blood Collection Equipment
  - Reading Assignment: Chapter 8 (pp. 249-280)

- Lesson 10 – Preanalytical Complications Causing Medical Errors in Blood Collection
  - Reading Assignment: Chapter 9 (pp. 281-300)
- Lesson 11 – Venipuncture Procedures
  - Reading Assignment: Chapter 10 (pp. 301-362)
- Lesson 12 – Capillary Blood Specimens
  - Reading Assignment: Chapter 11 (pp. 363-382)
- Lesson 13 – Specimen Handling, Transportation, and Processing
  - Reading Assignment: Chapter 12 (pp. 383-404)

#### **PHLEBOTOMY Module 4 – Point-of-Care Testing and Special Procedures**

- Lesson 14 – Pediatric and Geriatric Procedures
  - Reading Assignment: Chapter 13 (pp. 405-443)
- Lesson 15 – Point-of-Care Collections
  - Reading Assignment: Chapter 14 (pp. 444-464)
- Lesson 16 – Arterial, Intravenous (IV), and Special Collection Procedures
  - Reading Assignment: Chapter 15 (pp. 465-499)
- Lesson 17 – Urinalysis, Body Fluids, and Other Specimens
  - Reading Assignment: Chapter 16 (pp. 500-522)
- Lesson 18 – Drug Use, Forensic Toxicology, Workplace Testing, Sports Medicine and Related Areas
  - Reading Assignment: Chapter 17 (pp. 523-544)

**Note:** This program can be completed in 6 months. However, students will have online access to this program for a 24-month period.



## **MICROSOFT OFFICE Module**

- Use an integrated software package, specifically the applications included in the Microsoft Office suite
- Demonstrate marketable skills for enhanced employment opportunities
- Describe proper computer techniques for designing and producing various types of documents
- Demonstrate the common commands & techniques used in Windows desktop
- List the meaning of basic PC acronyms like MHz, MB, KB, HD and RAM
- Use WordPad and MSWord to create various types of documents
- Create headings and titles with Word Art
- Create and format spreadsheets, including the use of mathematical formulas
- Demonstrate a working knowledge of computer database functions, including putting, processing, querying and outputting data
- Define computer terminology in definition matching quizzes
- Use the Windows Paint program to alter graphics
- Use a presentation application to create a presentation with both text and graphics
- Copy data from one MS Office application to another application in the suite
- Use e-mail and the Internet to send Word and Excel file attachments
- Demonstrate how to use the Windows Taskbar and Windows Tooltips
- Explain how copyright laws pertain to data and graphics posted on the Internet
- Take the college computer competency test after course completion

**Note:** Although the Microsoft Office Module is not required to successfully complete this program, students interested in pursuing free Microsoft MOS certification may want to consider completing this Microsoft Office Module at no additional cost.

### **System Requirements:**

#### **Windows Users:**

- Windows 8, 7, XP or Vista
- 56K modem or higher
- Soundcard & Speakers
- Firefox, Chrome or Microsoft Internet Explorer

#### **Mac OS User:**

- Mac OS X or higher (in classic mode)
- 56K modem or higher
- Soundcard & Speakers
- Apple Safari

#### **iPad Users:**

- Due to Flash limitations, eLearning programs are NOT compatible with iPads

#### **Screen Resolution:**

- We recommend setting your screen resolution to 1024 x 768 pixels.

#### **Browser Requirements:**

- System will support the two latest releases of each browser. When using older versions of a browser, users risk running into problems with the course software.
  - Windows Users: Mozilla Firefox, Google Chrome, Microsoft Internet Explorer
  - Mac OS Users: Apple Safari, Google Chrome Mozilla Firefox

#### **Suggested Plug-ins:**

- Flash Player
- Real Player
- Adobe Reader
- Java