

# 2005 Mississippi Curriculum Framework

## Postsecondary Medical Assisting Technology

(Program CIP: 51.0801 – Medical/Clinical Assisting)

### Direct inquiries to

John Adcock  
Director for Career and Technical Education  
State Board for Community and Junior Colleges  
3825 Ridgewood Road  
Jackson, MS 39211  
(601) 432-6518

### Additional copies

Research and Curriculum Unit for Workforce Development  
Vocational and Technical Education  
Attention: Reference Room and Media Center Coordinator  
P.O. Drawer DX  
Mississippi State, MS 39762  
[www.rcu.msstate.edu/curriculum/downloads](http://www.rcu.msstate.edu/curriculum/downloads)  
(662) 325-2510

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## Acknowledgments

**Writing Team:** Kaye Roberson, Northeast Mississippi Community College, Booneville  
Christine King, Hinds Community College, Pearl

**RCU Staff:** Sally Pearson, MSN – Research, Curriculum, and Assessment Specialist

**Professional Curriculum Advisory Team:** Northeast Mississippi Community College, Medical Assisting Technology Advisory Committee

Hinds Community College, Medical Assisting Technology Advisory Committee

Standards in this document are based on information from the following organizations:

**CAAHEP Standards and Guidelines for Medical Assisting Educational Programs** Reprinted with permission from the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 2003.

**Workplace Skills for the 21<sup>st</sup> Century** Secretary's Commission on Achieving Necessary Skills

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## Foreword

As the world economy continues to evolve, businesses and industries must adopt new practices and processes in order to survive. Quality and cost control, work teams and participatory management, and an infusion of technology are transforming the way people work and do business. Employees are now expected to read, write, and communicate effectively; think creatively, solve problems, and make decisions; and interact with each other and the technologies in the workplace. Vocational-technical programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact on local vocational-technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses which focus on the development of occupational competencies. Each vocational-technical course in this sequence has been written using a common format which includes the following components:

- Course Name – A common name that will be used by all community/junior colleges in reporting students.
- Course Abbreviation – A common abbreviation that will be used by all community/junior colleges in reporting students.
- Classification – Courses may be classified as:
  - Vocational—Technical Core – A required vocational-technical course for all students.
  - Area of concentration (AOC) core – A course required in an area of concentration of a cluster of programs.
  - Vocational-technical elective – An elective vocational-technical course.
  - Related academic course – An academic course which provides academic skills and knowledge directly related to the program area.
  - Academic core – An academic course which is required as part of the requirements for an Associate degree.
- Description – A short narrative which includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester.

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course.
- Corequisites – A listing of courses that may be taken while enrolled in the course.
- Competencies and Suggested Objectives – A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies.

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75 percent of the time allocated to each course. The remaining 25 percent of each course should be developed at the local district level and may reflect:
  - Additional competencies and objectives within the course related to topics not found in the State framework, including activities related to specific needs of industries in the community college district.
  - Activities which develop a higher level of mastery on the existing competencies and suggested objectives.
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed/revised.
  - Activities which implement components of the Mississippi Tech Prep initiative, including integration of academic and vocational-technical skills and coursework, school-to-work transition activities, and articulation of secondary and postsecondary vocational-technical programs.
  - Individualized learning activities, including worksite learning activities, to better prepare individuals in the courses for their chosen occupational area.
- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.
- Programs that offer an Associate of Applied Science degree must include a minimum 15 semester credit hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:
 

○ 3 semester credit hours	Math/Science Elective
○ 3 semester credit hours	Written Communications Elective
○ 3 semester credit hours	Oral Communications Elective
○ 3 semester credit hours	Humanities/Fine Arts Elective
○ 3 semester credit hours	Social/Behavioral Science Elective

It is recommended that courses in the academic core be spaced out over the entire length of the program, so that students complete some academic and vocational-technical courses each semester. Each community/junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- In instances where secondary programs are directly related to community and junior college programs, competencies and suggested objectives from the high school programs are listed as Baseline Competencies. These competencies and objectives reflect skills and knowledge that are directly related to the community and junior college vocational-technical program. In adopting the curriculum framework, each community and junior college is asked to give assurances that:
  - Students who can demonstrate mastery of the Baseline Competencies do not receive duplicate instruction, and
  - Students who cannot demonstrate mastery of this content will be given the opportunity to do so.
- The roles of the Baseline Competencies are to:
  - Assist community/junior college personnel in developing articulation agreements with high schools, and
  - Ensure that all community and junior college courses provide a higher level of instruction than their secondary counterparts.
- The Baseline Competencies may be taught as special “Introduction” courses for 3-6 semester hours of institutional credit which will not count toward Associate degree requirements. Community and junior colleges may choose to integrate the Baseline Competencies into ongoing courses in lieu of offering the “Introduction” courses or may offer the competencies through special projects or individualized instruction methods.
- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

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## Program Description

Medical Assisting is a multi-skilled allied health profession whose practitioners work primarily in ambulatory settings such as medical offices and clinics. Medical assistants function as members of the health care delivery team and perform administrative and clinical procedures. The business administrative duties include scheduling and receiving patients; obtaining patients' data; maintaining medical records; handling telephone calls, correspondence, reports, and manuscripts; assuming responsibility for office care; and handling insurance matters, office accounts, fees, and collections. The clinical duties may include preparing patients for examination, obtaining vital signs, taking medical histories, assisting with examinations and treatments, performing routine office laboratory procedures and electrocardiograms, preparing and administering medications and immunizations, sterilizing instruments and equipment for office procedures, and instructing patients in preparation for x-ray and laboratory examinations. Both administrative and clinical duties involve purchasing and maintaining supplies and equipment. A medical assistant may also be responsible for personnel and office management. Successful completion of this program entitles graduates to sit for the American Association of Medical Assistants National Certification Examination. This program is accredited by the Commission of Accreditation of Allied Health Education Programs (CAAHEP) on recommendation of the Committee on Accreditation for Medical Assistant Education, 20 North Wacker Drive, Suite 1575, Chicago, Illinois 60606-2963, (800) 228-2262. This curriculum references the CAAHEP Standards and Guidelines for Medical Assisting Educational Programs.

CPR-Health Care Provider is a prerequisite to the program.

## Suggested Course Sequence\* Medical Assisting Technology

Baseline Competencies for Medical Assisting Technology\*\*

### FIRST YEAR

<p>3 sch    Written Communications Elective</p> <p>3 sch    Medical Terminology (MET 1113)</p> <p>4 sch    Anatomy and Physiology I (BIO 1514)</p> <p>3 sch    Fundamentals of Microcomputer Applications (CPT 1113) or Survey of Microcomputer Applications (CPT 1324)</p> <p>3 sch    Clinical Procedures I (MET 1313)</p> <p>3 sch    Pharmacology for Medical Assistants (MET 1513)</p> <hr style="width: 10%; margin-left: 0;"/> <p>19 sch</p>	<p>4 sch    Medical Business Practices (MET 1214)</p> <p>3 sch    Clinical Procedures II (MET 1323)</p> <p>3 sch    Medical Law and Ethics (MET 1413)</p> <p>4 sch    Anatomy and Physiology II (BIO 1524)</p> <p>3 sch    Oral Communications Elective</p> <hr style="width: 10%; margin-left: 0;"/> <p>17 sch</p>
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### SECOND YEAR

<p>4 sch    Computer Concepts for Medical Assistants (MET 2224) (District option elective)</p> <p>4 sch    Medical Laboratory for Medical Assistants (MET 2334)</p> <p>4 sch    Medical Insurance (MET 2234)</p> <p>3 sch    Math/Science Elective</p> <p>3 sch    Social/Behavioral Science Elective</p> <hr style="width: 10%; margin-left: 0;"/> <p>18 sch</p>	<p>3 sch    Business Communication (BOT 2813)</p> <p>6 sch    Externship (MET 2716)</p> <p>2 sch    Clinical Review (MET 2612)</p> <p>3 sch    Humanities/Fine Arts Elective</p> <hr style="width: 10%; margin-left: 0;"/> <p>14 sch</p>
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\*        Students who lack entry level skills in math, English, science, etc., will be provided related studies.

\*\*       Baseline competencies are taken from the high school Allied Health program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.

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## Medical Assisting Technology Courses

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**Course Name:** Medical Terminology

**Course Abbreviation:** MET 1113

**Classification:** Vocational—Technical Core

**Description:** This course is a study of medical language relating to the various body systems including diseases, physical conditions, procedures, clinical specialties, and abbreviations. Emphasis is placed on correct spelling and pronunciation, and the use of computer assisted software. (3 sch: 2 hr. lecture, 2 hr. lab)

**Prerequisite:** None

<b>Competencies and Suggested Objectives</b>
<ol style="list-style-type: none"> <li>1. Recognize and discuss word components, terms, procedures, abbreviations, and symbols related to the various body systems.               <ol style="list-style-type: none"> <li>a. Identify combining forms, suffixes, and prefixes related to the various body systems.</li> <li>b. Identify and discuss disease terms related to the various body systems.</li> <li>c. Identify diagnostic imaging, clinical, surgical, and laboratory procedures related to the various body systems.</li> <li>d. Identify abbreviations and symbols related to the various body systems.</li> <li>e. Define, spell, pronounce, and use medical terms.</li> </ol> </li> <li>2. Demonstrate ability to communicate information using medical terms in a clear, concise manner.               <ol style="list-style-type: none"> <li>a. Read and comprehend medical terminology as viewed in medical charts.</li> <li>b. Discuss medical terminology used in medical charts.</li> </ol> </li> </ol>



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## STANDARDS

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*CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

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MDA 2      The student will be competent in medical terminology.

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### *Related Academic Standards*

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- C1      Interpret written material.
- C2      Interpret visual materials (maps, charts, graphs, tables, etc.).
- C3      Listen, comprehend, and take appropriate actions.
- C4      Access, organize, and evaluate information.
- C5      Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
- C6      Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.

S1 Explain the Anatomy and Physiology of the human body.

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*Workplace Skills for the 21st Century*

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- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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T4 Technology communications tools

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*Suggested References*

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- Gyls, B. A., & Masters, R. M. (1998). *Medical terminology simplified: A programmed learning approach by body systems with CD-ROM* (2<sup>nd</sup> ed.). Philadelphia: F. A. Davis.
- Gyls, B. A., & Wedding, M. E. (1999). *Medical terminology: A systems approach* (4<sup>th</sup> ed.). Philadelphia: F. A. Davis.
- Venes, D., Thomas, C. T., & Taber, C. W. (2001). *Taber's cyclopedic medical dictionary* (19<sup>th</sup> ed.). Philadelphia: F. A. Davis.

**Course Name:** Medical Business Practices

**Course Abbreviation:** MET 1214

**Classification:** Vocational—Technical Core

**Description:** This course presents the administrative medical assistant procedures with office management written and oral communications. Emphasis is placed on billing, collecting, bookkeeping and creating and maintaining medical records. The goal is to provide the student with practice situations through the use of simulated office settings, pegboard simulation, and demonstration. (4 sch: 3 hr. lecture, 2 hr. lab)

**Prerequisites:** Fundamentals of Microcomputer Applications (CPT 1113) or Survey of Microcomputer Applications (CPT 1324) and Medical Terminology (MET 1113)

<b>Competencies and Suggested Objectives</b>	
1. Display professionalism.	<ul style="list-style-type: none"> <li>a. Project a professional manner and image.</li> <li>b. Demonstrate initiative and responsibility.</li> <li>c. Manage time effectively.</li> <li>d. Prioritize and perform multiple tasks.</li> <li>e. Adapt to change.</li> <li>f. Promote the Certified Medical Assistant (CMA) credential.</li> </ul>
2. Demonstrate professional communications.	<ul style="list-style-type: none"> <li>a. Adapt communication to individuals' abilities to understand.</li> <li>b. Demonstrate professional telephone techniques.</li> <li>c. Respond to and initiate written communications.</li> <li>d. Recognize and respond to verbal and nonverbal communications.</li> <li>e. Apply conflict resolution strategies when working with difficult patients and coworkers.</li> <li>f. Use medical terminology appropriately.</li> <li>g. Receive, organize, prioritize, and transmit information.</li> </ul>
3. Perform clerical functions.	<ul style="list-style-type: none"> <li>a. Schedule and manage appointments.</li> <li>b. Schedule inpatient/outpatient admissions and procedures.</li> <li>c. Prepare, organize, and file patients' medical records.</li> </ul>
4. Perform operational functions of the office environment.	<ul style="list-style-type: none"> <li>a. Perform an inventory of supplies and equipment.</li> <li>b. Perform routine maintenance of administrative equipment.</li> <li>c. Utilize computer software to maintain office systems.</li> </ul>
5. Perform bookkeeping procedures.	<ul style="list-style-type: none"> <li>a. Prepare a bank statement.</li> <li>b. Post entries on a daysheet.</li> <li>c. Perform accounts receivable procedures.</li> <li>d. Perform billing and collection procedures.</li> <li>e. Post adjustments.</li> </ul>

- f. Process credit balance.
- g. Process refunds.
- h. Post NSF checks.
- i. Post collection agency payments.

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

- MDA 2      The student will be competent in medical terminology.
- MDA 5      The student will be competent in communication.
- MDA 6      The student will be competent in medical assisting administrative procedures.
- MDA 8      The student will be competent in professional components.

### *Related Academic Standards*

- C1      Interpret written material.
- C2      Interpret visual materials (maps, charts, graphs, tables, etc.).
- C3      Listen, comprehend, and take appropriate actions.
- C4      Access, organize, and evaluate information.
- C5      Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
- C6      Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.
- M1      Relate number relationships, number systems, and number theory.
- M7      Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

### *Workplace Skills for the 21st Century*

- WP1      Allocates resources (time, money, materials and facilities, and human resources).
- WP2      Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP3      Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP4      Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP6      Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7      Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8      Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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- T1 Basic operations and concepts
- T2 Social, ethical, and human issues
- T3 Technology productivity tools
- T4 Technology communications tools
- T6 Technology problem-solving and decision-making tools

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*Suggested References*

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Becklin, K. J. (2003). *Medical office procedures* (5<sup>th</sup> ed.). Woodland Hills, CA: Glencoe McGraw-Hill.

Flores, E. K. (1999). *Medical office procedures with medical pegboard* (4<sup>th</sup> ed.). Albany, NY: Delmar/Thomson Learning.

**Course Name:** Clinical Procedures I

**Course Abbreviation:** MET 1313

**Classification:** Vocational—Technical Core

**Description:** The purpose of this course is to introduce the student to basic clinical skills [Occupational Safety and Health Administration (OSHA) Standards, hand-washing, vital signs, patient preparation, and assisting with examinations], emphasizing the importance of being proficient. This course also provides students with opportunities to practice and demonstrate proficiency in simulated settings and check-offs. (3 sch: 2 hr. lecture, 2 hr. lab)

**Pre/corequisites:** Medical Terminology (MET 1113), Pharmacology for Medical Assistants (MET 1513), and CPR-Health Care Provider certification

<b>Competencies and Suggested Objectives</b>	
1. Act in a professional manner.	<ul style="list-style-type: none"> <li>a. Project a professional manner and image.</li> <li>b. Adhere to ethical principles.</li> <li>c. Demonstrate initiative and responsibility.</li> <li>d. Work as a team member.</li> <li>e. Manage time effectively.</li> <li>f. Prioritize and perform multiple tasks.</li> <li>g. Adapt to change.</li> </ul>
2. Appraise communication skills.	<ul style="list-style-type: none"> <li>a. Treat all patients with compassion and empathy.</li> <li>b. Recognize and respect cultural diversity.</li> <li>c. Adapt communications to individual's ability to understand.</li> <li>d. Recognize and respond to verbal and nonverbal communications.</li> <li>e. Apply conflict resolution strategies when working with difficult patients and coworkers.</li> <li>f. Use medical terminology appropriately.</li> <li>g. Receive, organize, prioritize and transmit information.</li> <li>h. Serve as liaison between physician and patient.</li> </ul>
3. Apply legal concepts.	<ul style="list-style-type: none"> <li>a. Maintain confidentiality.</li> <li>b. Practice within the scope of education, training, and personal capabilities.</li> <li>c. Document accurately.</li> <li>d. Comply with documentation guidelines for physicals and drug screens for insurance and employment purposes.</li> </ul>
4. Perform clinical duties.	<ul style="list-style-type: none"> <li>a. Apply principles of aseptic technique and infection control.</li> <li>b. Employ OSHA guidelines as stated in the Federal Register.</li> <li>c. Obtain patient history and vital signs.</li> <li>d. Adhere to established patient screening procedures.</li> <li>e. Recognize and respond to medical emergencies.</li> </ul>

- f. Prepare and maintain examination and treatment area.
- g. Demonstrate proper cleansing of the examination and treatment area.
- h. Identify and state the purpose of each instrument used in selected clinical procedures.
- i. Recognize the need for proper care, storage, and maintenance of instruments.
- j. Prepare patients for examinations, procedures, and treatments.
- k. Assist with routine and specialty examinations, procedures, and treatments.
- l. Demonstrate specimen collection according to appropriate lab guidelines.
- m. Instruct patients in the collection of fecal specimens.
- n. Screen and follow up test results.
- o. Comply with quality assurance practices.
- p. Provide instruction for health maintenance and disease prevention.

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

- MDA 1 The student will be competent in anatomy and physiology.
- MDA 2 The student will be competent in medical terminology.
- MDA 3 The student will be competent in medical law and ethics.
- MDA 5 The student will be competent in communication.
- MDA 6 The student will be competent in medical assisting administrative procedures.
- MDA 7 The student will be competent in medical assisting clinical procedures.
- MDA 8 The student will be competent in professional components.

### *Related Academic Standards*

- C1 Interpret written material.
- C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
- C3 Listen, comprehend, and take appropriate actions.
- C4 Access, organize, and evaluate information.
- C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
- C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.
- M4 Explore the concepts of measurement.
- M6 Explore concepts of statistics and probability in real world situations.
- S1 Explain the Anatomy and Physiology of the human body.
- S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
- S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

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*Workplace Skills for the 21st Century*

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- WP1 Allocates resources (time, money, materials and facilities, and human resources).
- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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- T1 Basic operations and concepts
- T2 Social, ethical, and human issues
- T6 Technology problem-solving and decision-making tools

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*Suggested References*

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- Bonewit-West, K. (2003). *Student mastery manual to accompany clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.
- Bonewit-West, K. (2004). *Clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.
- Keir, L., Wise, B. A., & Krebs, C. (2003). *Medical assisting: Administrative and clinical competencies* (5<sup>th</sup> ed.). Albany, NY: Delmar.
- Venes, D., Thomas, C. T., & Taber, C. W. (2001). *Taber's cyclopedic medical dictionary* (19<sup>th</sup> ed.). Philadelphia: F. A. Davis.

**Course Name:** Clinical Procedures II

**Course Abbreviation:** MET 1323

**Classification:** Vocational—Technical Core

**Description:** This course is a continuation of Clinical Procedures I and will further the student's knowledge of the more complex activities encountered in the physician's office. The clinical duties include maintaining surgical asepsis, instructing patients in preparation for radiologic and sonographic studies, performing EKGs, preparing and administering medications as directed by the physician, and providing mobility assistance. (3 sch: 2 hr. lecture, 2 hr. lab)

**Prerequisites:** Clinical Procedures I (MET 1313), Medical Terminology (MET 1113), and Pharmacology for Medical Assistants (MET 1513)

<b>Competencies and Suggested Objectives</b>	
1.	Apply fundamental principles of aseptic technique in minor surgical procedures. <ol style="list-style-type: none"> <li>List the equipment and supplies basic to all minor surgical procedures.</li> <li>Demonstrate equipment sterilization procedures.</li> <li>Prepare minor office surgery tray.</li> <li>Perform skin prep of surgery site.</li> </ol>
2.	Provide instructions to patients to prepare for diagnostic imaging studies. <ol style="list-style-type: none"> <li>Prepare patients for procedures.</li> <li>Instruct patients in preparation for radiological and sonographic studies.</li> </ol>
3.	Perform selected tests that assist with diagnosis and treatment. <ol style="list-style-type: none"> <li>Perform respiratory testing.</li> <li>Describe the electrical conduction system of the heart.</li> <li>Perform an electrocardiogram (ECG).</li> <li>Define ECG artifacts and then list their causes on an ECG.</li> <li>Differentiate among the patch, scratch, and intradermal skin tests.</li> <li>Describe how to determine the results for each of the allergy testing methods.</li> <li>Describe how to determine the results for TB testing using Mantoux and Tine Test methods.</li> <li>Assist with routine and specialty examinations, procedures, and treatments.</li> <li>Demonstrate specimen collection according to appropriate lab guidelines.</li> <li>Instruct patients in the collection of fecal specimens.</li> <li>Screen and follow up test results.</li> <li>Comply with quality assurance practices.</li> </ol>
4.	Prepare and administer medications and immunizations as directed by physician. <ol style="list-style-type: none"> <li>Name the tissue layers and sites of injection for intradermal, intramuscular, z-track, and subcutaneous injections.</li> <li>Select proper size needle and syringe for a specific injection.</li> <li>Perform the proper technique for administering intradermal, intra-muscular, z-track, and subcutaneous injections.</li> <li>Demonstrate the proper disposal of a used needle and syringe.</li> </ol>

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|---|
| 5. Demonstrate knowledge of selected mobility assistance skills and use of equipment.       |
| a. Recognize and practice principles of body mechanics.                                     |
| b. Recognize and practice principles of exercise for range of motion.                       |
| c. Recognize and practice principles of transfers.  |
| d. Recognize and practice principles of ambulation activities.                              |
| e. Discuss the use and care of patient equipment.   |
| 6. Practice appropriate legal concepts.   |
| a. Respond to issues of confidentiality.  |
| b. Perform within legal and ethical boundaries.   |
| c. Maintain an awareness of federal and state health care legislation and legal guidelines. |

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

- |       |   |
|-------|---|
| MDA 1 | The student will be competent in anatomy and physiology.                |
| MDA 2 | The student will be competent in medical terminology.                   |
| MDA 3 | The student will be competent in medical law and ethics.                |
| MDA 5 | The student will be competent in communication.                         |
| MDA 7 | The student will be competent in medical assisting clinical procedures. |
| MDA 8 | The student will be competent in professional components.               |

### *Related Academic Standards*

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| C1 | Interpret written material.  |
| C2 | Interpret visual materials (maps, charts, graphs, tables, etc.).   |
| C3 | Listen, comprehend, and take appropriate actions.  |
| C4 | Access, organize, and evaluate information.  |
| C5 | Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.  |
| C6 | Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.  |
| M1 | Relate number relationships, number systems, and number theory.  |
| M7 | Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.  |
| S1 | Explain the Anatomy and Physiology of the human body.  |
| S6 | Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.  |
| S8 | Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form. |

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*Workplace Skills for the 21st Century*

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- WP1 Allocates resources (time, money, materials and facilities, and human resources).
- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP5 Selects, applies, and maintains/troubleshoots technology.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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- T1 Basic operations and concepts
- T2 Social, ethical, and human issues
- T5 Technology research tool
- T6 Technology problem-solving and decision-making tools

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*Suggested References*

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- Bonewit-West, K. (2003). *Student mastery manual to accompany clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.
- Bonewit-West, K. (2004). *Clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.
- Keir, L., Wise, B. A., & Krebs, C. (2003). *Medical assisting: Administrative and clinical competencies* (5<sup>th</sup> ed.). Albany, NY: Delmar.
- Lane, K., & Reed, L. (1999). *Medications: A guide for the health professions* (2<sup>nd</sup> ed.). Salem, MA: F. A. Davis.
- Venes, D., Thomas, C. T., & Taber, C. W. (2001). *Taber's cyclopedic medical dictionary* (19<sup>th</sup> ed.). Philadelphia: F. A. Davis.

**Course Name:** Medical Law and Ethics

**Course Abbreviation:** MET 1413

**Classification:** Vocational–Technical Core

**Description:** This course covers medical law, ethics, and acts; legal relationship of physician and patient; legal responsibilities of the medical assistant; and professional liability. (3 sch: 3 hr. lecture)

**Prerequisites:** None

<b>Competencies and Suggested Objectives</b>	
1. Define and discuss basic legal concepts.	<ul style="list-style-type: none"> <li>a. Distinguish between civil and criminal law.</li> <li>b. Differentiate between a felony and a misdemeanor.</li> <li>c. Distinguish between negligence and malpractice.</li> <li>d. List the elements of civil malpractice litigation.</li> <li>e. Identify the phases followed in trying medical malpractice cases.</li> <li>f. Identify the stages of appeal.</li> <li>g. Identify the economic impact of malpractice litigation on the cost of medicine.</li> <li>h. Define <i>subpoena ducas tecum</i>.</li> <li>i. Define tort.</li> <li>j. Distinguish among law, morals, ethics, and etiquette.</li> </ul>
2. Perform within legal and ethical boundaries.	<ul style="list-style-type: none"> <li>a. Identify ways that employment in a medical office carries legal obligations for the patient, employer, employee, and state.</li> <li>b. Describe the Creed of the American Association of Medical Assistants, the preamble to the Code of Ethics of the American Medical Association, and provisions of the Uniform Anatomical Gift Act and the Nuremberg Code.</li> </ul>
3. Practice within the scope of education, training, and personal capabilities.	<ul style="list-style-type: none"> <li>a. Explain standard of care.</li> <li>b. Describe the professional conduct for medical office personnel to prevent medical malpractice lawsuits.</li> </ul>
4. Identify and respond to issues of confidentiality.	<ul style="list-style-type: none"> <li>a. Explain confidentiality and privileged communication.</li> <li>b. Apply the legal doctrine of privileged communication to the contents of a medical record.</li> <li>c. Determine who has legitimate access to patient information.</li> <li>d. Explain the correct procedure for reporting communicable diseases in a manner that maintains confidentiality.</li> </ul>
5. Document accurately.	<ul style="list-style-type: none"> <li>a. Explain the importance of medical record credibility.</li> <li>b. Demonstrate the acceptable method for making corrections to a medical record.</li> <li>c. Determine needs for documentation and reporting.</li> <li>d. List different types of medical records.</li> </ul>

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| 6. Use appropriate guidelines when releasing records or information. <ol style="list-style-type: none"> <li>Describe the legal, moral, and ethical aspects of informed consent.</li> <li>Identify the owner of a medical record.</li> <li>Identify the procedures necessary for release of information from the medical record.</li> </ol>   |
| 7. Follow employer's established policies dealing with the health care contract. <ol style="list-style-type: none"> <li>List three elements for a contract to be valid.</li> <li>Differentiate between an implied and expressed contract for medical treatment.</li> <li>Identify and explain a patient's Bill of Rights.</li> <li>Discuss the procedure for terminating a physician-patient contract.</li> </ol>                    |
| 8. Follow federal, state, and local legal guidelines. <ol style="list-style-type: none"> <li>Describe the law as applied to the medical assistant.</li> <li>Recognize professional credentialing criteria.</li> </ol>  |
| 9. Implement and maintain awareness of federal and state health care legislation and regulations. <ol style="list-style-type: none"> <li>Identify questions surrounding bioethics and its impact on future generations.</li> <li>Identify ethical questions surrounding life, death, and the impact on future generations.</li> <li>Identify legal responsibilities for minors, incompetents, and special needs patients.</li> </ol> |

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

- MDA 3      The student will be competent in medical law and ethics.  
 MDA 4      The student will be competent in psychology.  
 MDA 5      The student will be competent in communication.  
 MDA 8      The student will be competent in professional components.

### *Related Academic Standards*

- C1      Interpret written material.  
 C2      Interpret visual materials (maps, charts, graphs, tables, etc.).  
 C3      Listen, comprehend, and take appropriate actions.  
 C4      Access, organize, and evaluate information.  
 C5      Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.  
 C6      Communicate ideas and information effectively using various oral and written forms for a

### *Workplace Skills for the 21st Century*

- WP1      Allocates resources (time, money, materials and facilities, and human resources).  
 WP2      Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.

- WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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- T2 Social, ethical, and human issues
- T5 Technology research tools

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*Suggested References*

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- Lewis, M. A., & Tamparo, C. D. (2002). *Medical law ethics & bioethics for ambulatory care* (5<sup>th</sup> ed.). Philadelphia: F. A. Davis.

**Course Name:** Pharmacology for Medical Assistants

**Course Abbreviation:** MET 1513

**Classification:** Vocational–Technical Core

**Description:** The course reflects basic theory and clinical information related to drugs, including classifications, source, dosages and measurements, regulatory requirements, and basic principles of drug administration. At all times, safety is emphasized for the health professional administering the medication and the patients receiving the medication. Accuracy is stressed. (3 sch: 3 hr. lecture)

**Prerequisite:** None

<b>Competencies and Suggested Objectives</b>
1. Calculate drug dosages. <ol style="list-style-type: none"> <li>a. Convert household measures to apothecary and metric system.</li> <li>b. Calculate dosages based on body weight and body surface area.</li> <li>c. Solve clinical calculations involved in the administration of medication with 100% accuracy.</li> <li>d. Use knowledge of appropriate methods of rounding doses when administering medications.</li> </ol>
2. Identify the major drug classifications. <ol style="list-style-type: none"> <li>a. List the major drug classifications.</li> <li>b. Name at least five drugs in each drug classification.</li> <li>c. Identify the action, indication, usual dosage, and adverse reactions of commonly used drugs.</li> </ol>
3. Identify the five controlled substances schedules. <ol style="list-style-type: none"> <li>a. Define the five controlled substances schedules and give examples of drugs listed in each.</li> <li>b. Explain storage, inventory, record keeping, and disposal for controlled substances.</li> <li>c. Explain the significance of the Controlled Substances Act of 1970.</li> </ol>
4. Apply pharmacology principles to prepare and administer oral and parenteral (excluding intravenous [IV]) medication. <ol style="list-style-type: none"> <li>a. State the "Six Rights" of proper drug administration.</li> <li>b. State the guidelines for safe drug administration.</li> <li>c. Identify the various methods and routes of administration of medication.</li> <li>d. Identify the principles of IV therapy.</li> <li>e. State the advantages and disadvantages of each medication route.</li> </ol>
5. Discuss medication orders from the physician. <ol style="list-style-type: none"> <li>a. Identify and define the standard abbreviations and symbols used in prescribing and administering medications.</li> <li>b. List the nine parts of a prescription.</li> <li>c. Discuss the different types of medication orders.</li> </ol>

6. Identify special considerations related to administering medications to infants and children.
  - a. Calculate drug dosages for children.
  - b. Discuss preferred routes of administration of medication.
  - c. State preferred sites of intramuscular (IM) injections in children

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

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|-------|---|
| MDA 1 | The student will be competent in anatomy and physiology.                |
| MDA 2 | The student will be competent in medical terminology.                   |
| MDA 3 | The student will be competent in medical law and ethics.                |
| MDA 5 | The student will be competent in communication.                         |
| MDA 7 | The student will be competent in medical assisting clinical procedures. |
| MDA 8 | The student will be competent in professional components.               |

### *Related Academic Standards*

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|----|---|
| C1 | Interpret written material.   |
| C2 | Interpret visual materials (maps, charts, graphs, tables, etc.).  |
| C3 | Listen, comprehend, and take appropriate actions.   |
| C4 | Access, organize, and evaluate information.   |
| C6 | Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.   |
| M1 | Relate number relationships, number systems, and number theory.   |
| M4 | Explore the concepts of measurement.  |
| M7 | Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.   |
| S1 | Explain the Anatomy and Physiology of the human body.<br>Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry. |

### *Workplace Skills for the 21st Century*

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|-----|---|
| WP1 | Allocates resources (time, money, materials and facilities, and human resources).   |
| WP2 | Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.                    |
| WP4 | Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems. |
| WP6 | Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.               |
| WP7 | Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.              |

WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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T5 Technology research tools

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*Suggested References*

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Deglin, J. H., & Vallerand, A. H. (2003). *Davis drug guide for nurses* (8<sup>th</sup> ed.). Philadelphia: F. A. Davis.

Deglin, J. H., & Vallerand, A. H. (2004). *MedNotes: Nurse's pocket pharmacology guide*. Philadelphia: F. A. Davis.

Lane, K., & Reed, L. (1999). *Medications: A guide for the health professions* (2<sup>nd</sup> ed.). Salem, MA: F. A. Davis.

**Course Name:** Computer Concepts for Medical Assistants

**Course Abbreviation:** MET 2224

**Classification:** Vocational–Technical Core

**Description:** This course will introduce students to the capabilities of a medical practice management software program typical of those currently used in doctors' offices. After completion of this course, students will have knowledge about working with patient accounts, insurance claim forms, and handling reports dealing with management of the medical practice. (4 sch: 2 hr. lecture, 4 hr. lab)

**Prerequisites:** Fundamentals of Microcomputer Applications (CPT 1113) or equal

<b>Competencies and Suggested Objectives</b>	
1. Discuss practice management data.	<ul style="list-style-type: none"> <li>a. Describe the flow of information in the medical office.</li> <li>b. Discuss the role of computers in today's medical office.</li> <li>c. Discuss hardware and software maintenance and technical support.</li> <li>d. Discuss the purpose of the medical manager program.</li> </ul>
2. Enter patient information and billing data.	<ul style="list-style-type: none"> <li>a. Enter patient account information.</li> <li>b. Describe the relationships of the guarantor and patient.</li> <li>c. Explain the process of posting accounts.</li> <li>d. Modify or correct a patient account.</li> <li>e. Post payments from accounts.</li> <li>f. Make posting adjustments from the procedure entry screen.</li> <li>g. Make posting adjustments from the payment entry screen.</li> </ul>
3. Generate super bills, billing statements, and insurance claim forms.	<ul style="list-style-type: none"> <li>a. Discuss functions of a super bill for various medical specialties.</li> <li>b. Post charges from a super bill to a patients2019 account.</li> <li>c. Explain several methods for billing patients on a regular basis.</li> <li>d. Print patient statements.</li> <li>e. Name and describe three types of insurance plans.</li> <li>f. Describe three methods for collecting insurance payments.</li> </ul>
4. Age accounts receivable.	<ul style="list-style-type: none"> <li>a. Discuss the account aging process.</li> <li>b. Explain the purpose and importance of a period, close, and purge.</li> </ul>
5. Print patient and practice reports.	<ul style="list-style-type: none"> <li>a. Retrieve and print patient reports including guarantor reports, insured party reports, referring party reports, and ailment reports.</li> <li>b. Retrieve and print medical practice reports including procedure code reports, diagnostic code reports, claim center reports, service facility reports, current period reports, and system summary reports.</li> </ul>

**STANDARDS***CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

- MDA 2      The student will be competent in medical terminology.  
MDA 5      The student will be competent in communication.  
MDA 6      The student will be competent in medical assisting administrative procedures.

*Related Academic Standards*

- C1      Interpret written material.  
C2      Interpret visual materials (maps, charts, graphs, tables, etc.).  
C4      Access, organize, and evaluate information.  
C5      Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.  
C6      Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.  
M1      Relate number relationships, number systems, and number theory.  
M7      Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

*Workplace Skills for the 21st Century*

- WP1      Allocates resources (time, money, materials and facilities, and human resources).  
WP2      Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.  
WP4      Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.  
WP5      Selects, applies, and maintains/troubleshoots technology.  
WP6      Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.  
WP7      Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.  
WP8      Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

*National Educational Technology Standards for Students*

- T1      Basic operations and concepts  
T3      Technology productivity tools  
T4      Technology communications tools  
T6      Technology problem-solving and decision-making tools

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*Suggested References*

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Gartee, R. (2004). *Medical manager student* (10<sup>th</sup> ed.). Albany, NY: Thomson/Delmar Learning.

**Course Name:** Medical Insurance

**Course Abbreviation:** MET 2234

**Classification:** Vocational–Technical Core

**Description:** The purpose of this course is to acquaint the student with different types of insurance, including disability, Worker’s Compensation, Medicare, Medicaid, Medicare-Medicaid, group plans such as Blue Cross and Blue Shield, and TRICARE (formerly known as CHAMPUS). Practical approach to insurance billing, basic medical and insurance abbreviations, terminology, and ICD-9-CM and CPT coding will be presented. (4 sch: 3 hr. lecture, 2 hr. lab)

**Prerequisites:** Medical Terminology (MET 1113)

<b>Competencies and Suggested Objectives</b>	
1.	Perform procedural and diagnostic coding. <ol style="list-style-type: none"> <li>Locate the correct CPT and ICD-9 code.</li> <li>Identify the importance and use of modifiers in coding.</li> <li>State the meaning of basic abbreviations and symbols in the code books.</li> </ol>
2.	Describe the life cycle of a health insurance claim form. <ol style="list-style-type: none"> <li>Abstract from the patient record the information for completing an insurance claim form.</li> <li>Process the Universal Health Insurance Claim Form.</li> <li>Record on the patient’s ledger card after submitting a claim.</li> <li>Formulate an insurance claims register or log.</li> <li>Monitor third party reimbursement.</li> <li>Utilize effective oral or written communication with insurance companies regarding erroneous payments.</li> <li>Trace a delinquent insurance claim.</li> <li>Describe electronic claims transmission.</li> </ol>
3.	Analyze and apply current third party guidelines. <ol style="list-style-type: none"> <li>Define the major classes of health insurance contracts.</li> <li>Give examples of federal, state, and private insurance plans.</li> <li>Define common insurance, medical, and diagnostic terms.</li> <li>Differentiate among usual, customary, and reasonable fees.</li> <li>Cite the essential features of the Blue Plans, Medicaid, Medicare, Worker’s Compensation, Disability, and TRICARE.</li> </ol>
4.	Recognize and adhere to managed care policies and procedures. <ol style="list-style-type: none"> <li>Define a Prepaid Health Plan (PHP).</li> <li>Identify the types of prepaid health plans.</li> <li>Define independent practice associations (IPA).</li> <li>Define preferred provider organizations.</li> <li>Identify the purpose of diagnosis related groups.</li> <li>Define terminology related to diagnosis related groups.</li> <li>Describe how payment is made based on diagnosis related groups.</li> <li>Discuss professional review organizations (PRO’s).</li> </ol>

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| i. Discuss managed care referrals and precertifications. |
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## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

MDA 1	The student will be competent in anatomy and physiology.
MDA 2	The student will be competent in medical terminology.
MDA 3	The student will be competent in medical law and ethics.
MDA 5	The student will be competent in communication.
MDA 6	The student will be competent in medical assisting administrative procedures.
MDA 8	The student will be competent in professional components.

### *Related Academic Standards*

C1	Interpret written material.
C2	Interpret visual materials (maps, charts, graphs, tables, etc.).
C3	Listen, comprehend, and take appropriate actions.
C4	Access, organize, and evaluate information.
C5	Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
C6	Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.
M1	Relate number relationships, number systems, and number theory.
M7	Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

### *Workplace Skills for the 21st Century*

WP1	Allocates resources (time, money, materials and facilities, and human resources).
WP2	Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
WP3	Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP5	Selects, applies, and maintains/troubleshoots technology.
WP6	Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7	Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
WP8	Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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- T1 Basic operations and concepts
- T2 Social, ethical, and human issues
- T3 Technology productivity tools

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*Suggested References*

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- American Medical Association. (2004). *CPT 2005: Current procedural terminology* (Professional ed.). Chicago: Author.
- American Medical Association. (2004). *Physician ICD-9-CM 2004: International classification of diseases, clinical modification*. Chicago: Author
- Fordney, M. T. (2004). *Insurance handbook for the medical office: Text and workbook package* (8<sup>th</sup> ed.). St. Louis, MO: Saunders.
- Rowell, J. A., & Green, M. (2004) *Understanding medical insurance: A guide to professional billing* (7<sup>th</sup> ed.). Albany, NY: Thomson/Delmar Learning.
- Rowell, J. C., Green, M. A., & Burke, R. M. (2001). *Workbook to accompany understanding health insurance: A guide to professional billing* (6<sup>th</sup> ed.). Albany, NY: Thomson/Delmar Learning.

**Course Name:** Medical Laboratory for Medical Assistants

**Course Abbreviation:** MET 2334

**Classification:** Vocational–Technical Core

**Description:** This course covers techniques of the clinical laboratory including competent use of the microscope, and understanding the theory and knowledge of the common laboratory tests performed in the physician’s office. Students will develop proficiency in laboratory and quality assurance procedures including collection, preparation and processing of specimens, urinalysis, hematology, and accurate reporting of test results. (4 sch: 3 hr. lecture, 2 hr. lab)

**Prerequisites:** Anatomy and Physiology I (BIO 1514) and II (BIO 1524), Clinical Procedures I (MET 1313) and II (MET 1323), and Medical Terminology (MET 1113)

<b>Competencies and Suggested Objectives</b>	
1.	State the organization and function of the medical laboratory. <ol style="list-style-type: none"> <li>List the organization and function of the medical laboratory.</li> <li>Describe the departments within a medical laboratory.</li> </ol>
2.	Manage the physician’s office laboratory. <ol style="list-style-type: none"> <li>Comply with established risk management and safety procedures.</li> <li>Comply with federal Clinical Laboratory Improvement Amendments (CLIA) regulations.</li> <li>Explain the proper care, use, function, and storage of the microscope.</li> <li>Perform an inventory of supplies and equipment.</li> <li>Operate and perform routine maintenance of clinical equipment.</li> <li>Practice standard precautions.</li> <li>Dispose of bio-hazardous materials according to OSHA guidelines.</li> <li>Demonstrate knowledge of federal and state health care legislation and regulations.</li> </ol>
3.	Collect and process clinical specimens. <ol style="list-style-type: none"> <li>Discuss the hazards in a medical laboratory.</li> <li>Discuss and practice laboratory safety procedures.</li> <li>Perform capillary and venipuncture.</li> <li>Obtain specimens for microbiological testing.</li> <li>Instruct patients in the collection of a clean-catch mid-stream urine specimen.</li> <li>Demonstrate wound collection procedure for microbiological testing.</li> <li>Discuss paperwork guidelines for physicals and drug screens for insurance and employment purposes.</li> </ol>
4.	Perform selected laboratory tests that assist with diagnosis and treatment. <ol style="list-style-type: none"> <li>Perform CLIA waived tests, to include urinalysis.               <ol style="list-style-type: none"> <li>Perform hematology testing.</li> <li>Perform chemistry testing.</li> <li>Perform immunology testing.</li> <li>Perform microbiology testing.</li> </ol> </li> <li>Prepare a microhematocrit sample.</li> <li>Perform manual and automated hematology procedures.</li> </ol>

d. Perform the erythrocyte sedimentation test.
e. Describe the interaction of blood vessels, platelets, coagulation factors, and fibrinolytic systems in normal and abnormal homeostasis.
f. Perform a urine pregnancy test.
g. Perform a test for infectious mononucleosis.
h. Perform a rapid strep test.
i. Describe the formation and composition of urine.
j. Explain the properties involved in the physical, chemical, and microscopic examination of urine.
k. Perform the testing involved in the physical, chemical, and microscopic examination of urine.
l. Correlate results of urinalysis with clinical conditions.
m. Record laboratory results accurately.
n. Solve laboratory mathematics problems.
5. Screen and follow up patient test results.
a. Briefly describe the function, composition, normal values, and characteristics of blood.
b. Discuss common blood disorders.
6. Comply with quality assurance practices.
a. Define accuracy and precision.
b. Perform quality control procedures.
c. Explain the importance of quality control in the physician's office laboratory; plot quality control results; and interpret these results.
d. Discuss erroneous results due to equipment error.

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

MDA 1	The student will be competent in anatomy and physiology.
MDA 2	The student will be competent in medical terminology.
MDA 3	The student will be competent in medical law and ethics.
MDA 5	The student will be competent in communication.
MDA 7	The student will be competent in medical assisting clinical procedures.
MDA 8	The student will be competent in professional components.

### *Related Academic Standards*

C1	Interpret written material.
C2	Interpret visual materials (maps, charts, graphs, tables, etc.).
C3	Listen, comprehend, and take appropriate actions.
C4	Access, organize, and evaluate information.
C5	Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
C6	Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.

- M4 Explore the concepts of measurement.
- M6 Explore concepts of statistics and probability in real world situations.
- M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.
- S1 Explain the Anatomy and Physiology of the human body.
- S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista,
- S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
- S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

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### *Workplace Skills for the 21st Century*

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- WP1 Allocates resources (time, money, materials and facilities, and human resources).
- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP5 Selects, applies, and maintains/troubleshoots technology.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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### *National Educational Technology Standards for Students*

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- T1 Basic operations and concepts
- T2 Social, ethical, and human issues
- T5 Technology research tools
- T6 Technology problem-solving and decision-making tools

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### *Suggested References*

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Bonewit-West, K. (2003). *Student mastery manual to accompany clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.

Bonewit-West, K. (2004). *Clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.

Palko, T., & Palko, H. (1998). *Glencoe medical laboratory procedures*. New York: Glencoe McGraw-Hill.

**Course Name:** Clinical Review

**Course Abbreviation:** MET 2612

**Classification:** Vocational–Technical Core

**Description:** This summary course is designed to review the skills, knowledge, and abilities acquired during the didacticum. This course will serve to assist the student in preparing for the certification exam, with a review of critical clinical skills and professional development issues. (2 sch: 2 hr. lecture)

**Pre/corequisites:** Anatomy and Physiology I (BIO 1514) and II (BIO 1524), Clinical Procedures I (MET 1313) and II (MET 1323), Medical Terminology (MET 1113), and Concurrent registration in Externship (MET 2716)

<b>Competencies and Suggested Objectives</b>	
1.	Apply test taking strategies and study skills. <ol style="list-style-type: none"> <li>Demonstrate the ability and apply selected study and test taking strategies.</li> <li>Demonstrate familiarity with the CMA exam format.</li> <li>Assess individual knowledge weaknesses and improve these weaknesses.</li> </ol>
2.	Prepare for the National Certification Exam. <ol style="list-style-type: none"> <li>Discuss national certification and continuing education.</li> <li>Review specific content areas for the CMA exam.</li> <li>Take mock certification exams for practice.</li> </ol>

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

MDA 1	The student will be competent in anatomy and physiology.
MDA 2	The student will be competent in medical terminology.
MDA 3	The student will be competent in medical law and ethics.
MDA 4	The student will be competent in psychology.
MDA 5	The student will be competent in communication.
MDA 6	The student will be competent in medical assisting administrative procedures.
MDA 7	The student will be competent in medical assisting clinical procedures.
MDA 8	The student will be competent in professional components.

### *Related Academic Standards*

C1	Interpret written material.
C2	Interpret visual materials (maps, charts, graphs, tables, etc.).
C3	Listen, comprehend, and take appropriate actions.
C4	Access, organize, and evaluate information.

- C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
- C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.
- M1 Relate number relationships, number systems, and number theory.
- M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.
- S1 Explain the Anatomy and Physiology of the human body.
- S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
- S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

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### *Workplace Skills for the 21st Century*

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- WP1 Allocates resources (time, money, materials and facilities, and human resources).
- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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### *National Educational Technology Standards for Students*

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- T1 Basic operations and concepts

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### *Suggested References*

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- Cody, J. P. (1998). *Delmar's medical assisting exam review: Preparation for the CMA and RMA exams*. Albany, NY: Delmar.
- Hemby, M. P. (2001). *Outline review for the medical assistant* (2<sup>nd</sup> ed.). Upper Saddle River, NJ: Prentice Hall.
- Moini, J. (2001). *Glencoe medical assisting review: Passing the CMA and RMA exams* (includes CD). New York: McGraw-Hill.
- Palko, T., & Palko, H. (2001). *Q&A review for the medical assistant* (6<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall.

**Course Name:** Externship

**Course Abbreviation:** MET 2716

**Classification:** Vocational–Technical Core

**Description:** This course includes supervised experience in medical offices to provide the student with a comprehensive application of administrative and clinical skills. This course is designed to give the student an opportunity to discuss, evaluate, and share learning experiences and to strengthen learning situations brought up in a clinical externship. (6 sch: 1 hr. lecture, 15 hrs. clinical)

**Prerequisites:** Successful completion of all freshman and first semester sophomore courses is required. Concurrent registration in Clinical Review (MET 2612).

<b>Competencies and Suggested Objectives</b>	
1. Perform clerical functions.	<ul style="list-style-type: none"> <li>a. Schedule and manage appointments.</li> <li>b. Schedule inpatient and outpatient admissions and procedures.</li> <li>c. Organize a patient's medical record.</li> <li>d. File medical records.</li> </ul>
2. Perform bookkeeping procedures.	<ul style="list-style-type: none"> <li>a. Prepare a bank deposit.</li> <li>b. Post entries on a daysheet.</li> <li>c. Perform accounts receivable procedures.</li> <li>d. Perform billing and collection procedures.</li> <li>e. Process credit balance.</li> <li>f. Process refunds.</li> <li>g. Post NSF checks.</li> <li>h. Post collection agency payments.</li> </ul>
3. Process insurance claims.	<ul style="list-style-type: none"> <li>a. Apply managed care policies and procedures.</li> <li>b. Apply third party guidelines.</li> <li>c. Perform procedural coding.</li> <li>d. Perform diagnostic coding.</li> <li>e. Complete insurance claim forms.</li> </ul>
4. Apply fundamental clinical procedures.	<ul style="list-style-type: none"> <li>a. Perform handwashing.</li> <li>b. Wrap items for autoclaving.</li> <li>c. Perform sterilization techniques.</li> <li>d. Dispose of biohazardous materials.</li> <li>e. Practice standard precautions.</li> </ul>

<p>5. Perform specimen collection.</p> <ul style="list-style-type: none"><li>a. Perform venipuncture.</li><li>b. Perform capillary puncture.</li><li>c. Obtain specimens for microbiological testing.</li><li>d. Instruct patients in the collection of a clean; catch mid-stream urine specimen.</li><li>e. Instruct patients in the collection of fecal specimens.</li></ul>
<p>6. Perform diagnostic testing.</p> <ul style="list-style-type: none"><li>a. Perform electrocardiography.</li><li>b. Perform respiratory testing.</li><li>c. Perform CLIA waived tests.<ul style="list-style-type: none"><li>(1) Perform urinalysis.</li><li>(2) Perform hematology testing.</li><li>(3) Perform chemistry testing.</li><li>(4) Perform immunology testing.</li><li>(5) Perform microbiology testing.</li></ul></li></ul>
<p>7. Provide patient care.</p> <ul style="list-style-type: none"><li>a. Perform telephone and in-person screening.</li><li>b. Obtain vital signs.</li><li>c. Obtain and record patient history.</li><li>d. Prepare and maintain examination and treatment areas.</li><li>e. Prepare patient for and assist with routine and specialty examinations.</li><li>f. Prepare patient for and assist with procedures, treatments, and minor office surgeries.</li><li>g. Apply pharmacology principles to prepare and administer oral and parenteral (excluding IV) medications.</li><li>h. Maintain medication and immunization records.</li><li>i. Screen and follow up test results.</li></ul>
<p>8. Employ professional communications.</p> <ul style="list-style-type: none"><li>a. Respond to and initiate written communications.</li><li>b. Recognize and respond to verbal communications.</li><li>c. Recognize and respond to nonverbal communications.</li><li>d. Demonstrate telephone techniques.</li></ul>
<p>9. Practice legal concepts.</p> <ul style="list-style-type: none"><li>a. Identify and respond to issues of confidentiality.</li><li>b. Perform within legal and ethical boundaries.</li><li>c. Establish and maintain the medical record.</li><li>d. Document appropriately.</li><li>e. Demonstrate knowledge of federal and state health care legislation and regulations.</li></ul>
<p>10. Demonstrate patient instruction.</p> <ul style="list-style-type: none"><li>a. Explain general office policies.</li><li>b. Instruct individuals according to their needs.</li><li>c. Provide instruction for health maintenance and disease prevention.</li><li>d. Identify community resources.</li></ul>

11. Maintain operational functions.
- a. Perform an inventory of supplies and equipment.
  - b. Perform routine maintenance of administrative and clinical equipment.
  - c. Utilize computer software to maintain office systems.
  - d. Use methods of quality control.

## STANDARDS

### *CAAHEP Standards and Guidelines for Medical Assisting Educational Programs*

- |       |   |
|-------|---|
| MDA 1 | The student will be competent in anatomy and physiology.                      |
| MDA 2 | The student will be competent in medical terminology.                         |
| MDA 3 | The student will be competent in medical law and ethics.                      |
| MDA 4 | The student will be competent in psychology.                                  |
| MDA 5 | The student will be competent in communication.                               |
| MDA 6 | The student will be competent in medical assisting administrative procedures. |
| MDA 7 | The student will be competent in medical assisting clinical procedures.       |
| MDA 8 | The student will be competent in professional components.                     |

### *Related Academic Standards*

- |    |  |
|----|--|
| C1 | Interpret written material.  |
| C2 | Interpret visual materials (maps, charts, graphs, tables, etc.).   |
| C3 | Listen, comprehend, and take appropriate actions.  |
| C4 | Access, organize, and evaluate information.  |
| C5 | Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.  |
| C6 | Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.  |
| M1 | Relate number relationships, number systems, and number theory.  |
| M7 | Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.  |
| S1 | Explain the Anatomy and Physiology of the human body.  |
| S2 | Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.   |
| S8 | Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form. |

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*Workplace Skills for the 21st Century*

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- WP1 Allocates resources (time, money, materials and facilities, and human resources).
- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP5 Selects, applies, and maintains/troubleshoots technology.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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*National Educational Technology Standards for Students*

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- T1 Basic operations and concepts
- T2 Social, ethical, and human issues
- T6 Technology problem-solving and decision-making tools

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*Suggested References*

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- Bonewit-West, K. (2003). *Student mastery manual to accompany clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.
- Bonewit-West, K. (2004). *Clinical procedures for medical assistants* (6<sup>th</sup> ed.). St. Louis, MO: Saunders.

## Recommended Tools and Equipment

### CAPITALIZED ITEMS

1. Arm, injectable training (1 per 2 students)
2. Chemistry analyzer, dryslide (1 per program)
3. Chemistry analyzer (wet) with reagent set (1 per program)
4. Centrifuge, table top (5 per program)
5. ECG machine with stand (1 per program)
6. Examination table (1 per program)
7. Eye wash station (1 per program)
8. Hematology analyzer, automated (1 per program)
9. Micro-Hematocrit centrifuge (1 per program)
10. Intramuscular training buttocks (1 per program)
11. Manikin, child size (2 per program)
12. Manikin, CPR adult (2 per program)
13. Manikin, CPR baby (2 per program)
14. Microscope, oil immersion (1 per student)
15. Ophthalmoscope/otoscope combination (1 per program)
16. Refractometer (5 per program)
17. Scale, physician (1 adult and 1 pediatric per program)
18. Semiautomated cell counter (1 per program)
19. Wheelchair, adult (1 per program)
20. Autoclave (1 per program)
21. Spirometer (1 per program)
22. Computer, color with accessories (1 per student)
23. Printer, laser (1 per 2 computers)
24. TV monitor, 25" color (1 per program)
25. VCR (1 per program)
26. DVD (1 per program)
27. LCD (1 per program)
28. Slide projector (1 per program)

### NON-CAPITALIZED

1. Cabinet, file (lateral) (1 per program)
2. Percussion hammer (1 per program)
3. Stethoscope, dual teaching (1 per program)
4. Glucometer (1 per program)
5. Lamp, gooseneck (1 per program)
6. Mayo tray and stand (1 per program)
7. Thermometer, digital (1 per program)
8. Thermometer, electronic (1 per program)
9. Thermometer, tympanic (1 per program)
10. Transcriber with headphone and foot pedals (1 per student)
11. Treatment cabinet (1 per program)

12. Bandages, triangular (10 per program)
13. Bandages, Ace-type (1 set of assorted widths and sizes)
14. Bedsheets, flat (5 per program)
15. Ishahara color blindness chart (1 per program)
16. Pillows (2 per program)
17. Pillowcases (6 per program)
18. Slide drying racks (1 per 2 students)
19. Snellen Eye Chart (1 per program)
20. Sphygmomanometer, wall mount (aneroid or mercury) (1 per program)
21. Sphygmomanometer, free standing (aneroid or mercury) (1 per 2 students)
22. Stethoscope (1 per 2 students)

## Student Competency Profile for Medical Assisting Technology

Student: \_\_\_\_\_

This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.

In the blank before each competency, place the date on which the student mastered the competency.

### Medical Terminology (MET 1113)

- \_\_\_\_\_ 1. Recognize and discuss word components, terms, procedures, abbreviations, and symbols related to the various body systems.
- \_\_\_\_\_ 2. Demonstrate ability to communicate information using medical terms in a clear, concise manner.

### Medical Business Practices (MET 1214)

- \_\_\_\_\_ 1. Display professionalism.
- \_\_\_\_\_ 2. Demonstrate professional communications.
- \_\_\_\_\_ 3. Perform clerical functions.
- \_\_\_\_\_ 4. Perform operational functions of the office environment.
- \_\_\_\_\_ 5. Perform bookkeeping procedures

### Clinical Procedures I (MET 1313)

- \_\_\_\_\_ 1. Act in a professional manner.
- \_\_\_\_\_ 2. Appraise communication skills.
- \_\_\_\_\_ 3. Apply legal concepts.
- \_\_\_\_\_ 4. Perform clinical duties.

### Clinical Procedures II (MET 1323)

- \_\_\_\_\_ 1. Apply fundamental principles of aseptic technique in minor surgical procedures.
- \_\_\_\_\_ 2. Provide instructions to patients to prepare for diagnostic imaging studies.
- \_\_\_\_\_ 3. Perform selected tests that assist with diagnosis and treatment.
- \_\_\_\_\_ 4. Prepare and administer medications and immunizations as directed by physician.
- \_\_\_\_\_ 5. Demonstrate knowledge of selected mobility assistance skills and use of equipment.
- \_\_\_\_\_ 6. Practice appropriate legal concepts.

### Medical Law and Ethics (MET 1413)

- \_\_\_\_\_ 1. Define and discuss basic legal concepts.
- \_\_\_\_\_ 2. Perform within legal and ethical boundaries.

- \_\_\_\_\_ 3. Practice within the scope of education, training, and personal capabilities.
- \_\_\_\_\_ 4. Identify and respond to issues of confidentiality.
- \_\_\_\_\_ 5. Document accurately.
- \_\_\_\_\_ 6. Use appropriate guidelines when releasing records or information.
- \_\_\_\_\_ 7. Follow employer's established policies dealing with the health care contract.
- \_\_\_\_\_ 8. Follow federal, state, and local legal guidelines.
- \_\_\_\_\_ 9. Implement and maintain awareness of federal and state health care legislation and regulations.

#### Pharmacology for Medical Assistants (MET 1513)

- \_\_\_\_\_ 1. Calculate drug dosages.
- \_\_\_\_\_ 2. Identify the major drug classifications.
- \_\_\_\_\_ 3. Identify the five controlled substances schedules.
- \_\_\_\_\_ 4. Apply pharmacology principles to prepare and administer oral and parenteral (excluding IV) medication.
- \_\_\_\_\_ 5. Discuss medication orders from the physician.
- \_\_\_\_\_ 6. Identify special considerations related to administering medications to infants and children.

#### Computer Concepts for Medical Assistants (MET 2224)

- \_\_\_\_\_ 1. Discuss practice management data.
- \_\_\_\_\_ 2. Enter patient information and billing data.
- \_\_\_\_\_ 3. Generate super bills, billing statements, and insurance claim forms.
- \_\_\_\_\_ 4. Age accounts receivable.
- \_\_\_\_\_ 5. Print patient and practice reports.

#### Medical Insurance (MET 2234)

- \_\_\_\_\_ 1. Perform procedural and diagnostic coding.
- \_\_\_\_\_ 2. Describe the life cycle of a health insurance claim form.
- \_\_\_\_\_ 3. Analyze and apply current third party guidelines.
- \_\_\_\_\_ 4. Recognize and adhere to managed care policies and procedures.

#### Medical Laboratory for Medical Assistants (MET 2334)

- \_\_\_\_\_ 1. State the organization and function of the medical laboratory.
- \_\_\_\_\_ 2. Manage the physician's office laboratory.
- \_\_\_\_\_ 3. Collect and process clinical specimens.
- \_\_\_\_\_ 4. Perform selected laboratory tests that assist with diagnosis and treatment.
- \_\_\_\_\_ 5. Screen and follow up patient test results.
- \_\_\_\_\_ 6. Comply with quality assurance practices.

## Clinical Review (MET 2612)

- \_\_\_\_\_ 1. Apply test taking strategies and study skills.
- \_\_\_\_\_ 2. Prepare for the National Certification Exam.

## Externship (MET 2716)

- \_\_\_\_\_ 1. Perform clerical functions.
- \_\_\_\_\_ 2. Perform bookkeeping procedures.
- \_\_\_\_\_ 3. Process insurance claims.
- \_\_\_\_\_ 4. Apply fundamental clinical procedures.
- \_\_\_\_\_ 5. Perform specimen collection.
- \_\_\_\_\_ 6. Perform diagnostic testing.
- \_\_\_\_\_ 7. Provide patient care.
- \_\_\_\_\_ 8. Employ professional communications.
- \_\_\_\_\_ 9. Practice legal concepts.
- \_\_\_\_\_ 10. Demonstrate patient instruction.
- \_\_\_\_\_ 11. Maintain operational functions.

## Baseline Competencies

The following competencies and suggested objectives are taken from the publication *Mississippi Curriculum Framework for Allied Health*. These competencies and objectives represent the baseline which was used to develop the community/junior college Medical Assisting Technology courses. Students enrolled in postsecondary courses should either (1) have documented mastery of these competencies, or (2) be provided with these competencies before studying the advanced competencies in the Medical Assisting Technology program.

Baseline competencies may be integrated into existing courses in the curriculum or taught as special “Introduction” courses. The “Introduction” courses may be taught for up to six semester hours of institutional credit and may be divided into two courses. If the Baseline Competencies are to be taught as “Introduction” courses, each course should be at least 3 credit hours. The following course number(s) and description should be used:

**Course Name(s):** Introduction to Medical Assisting Technology, Introduction to Medical Assisting Technology I, or Introduction to Medical Assisting Technology II

**Course Abbreviation(s):** MET 100(3-6), MET 1013, MET 1023

**Classification:** Vocational—Technical Core

**Description:** These courses contain the baseline competencies and suggested objectives from the high school curriculum which directly relate to the community college program. The courses are designed for students entering the community college who have had no previous training or documented experience in the field. (3-6 semester hours based upon existing skills for each student, may be divided into 2 courses for a maximum total of 6 hours of institutional credit.)

### Competencies and Suggested Objectives:

1. Review material related to course and professional organizations.
  - a. Identify student and course expectations.
  - b. Identify allied health professional student organizations and their roles in individual career development.
  - c. Compare the timeline of medical history.
2. Recognize safety procedures and policies.
  - a. Describe basic safety procedures.
  - b. Describe accident prevention methods and disaster plans of the local school district.
  - c. Discuss a safe and clean environment.
  - d. Follow state and facility guidelines, including dress requirements for clinical-type experiences.
3. Explain effective communication skills.
  - a. Identify the main factors required for the communication process.
  - b. Identify factors which can interfere with the communication process.
  - c. Demonstrate effective teamwork skills.

- d. Explore professional literature and medical references.
4. Introduce careers in the health care industry.
  - a. Introduce careers in health care information and administration.
  - b. Introduce careers in direct health care.
  - c. Introduce careers in medical therapy.
  - d. Introduce careers in diagnostic health care.
5. Discuss education and credentials required for health care careers.
  - a. Discuss educational levels for health careers, including certification, associate degree, bachelor's degree, master's degree, and doctoral degree.
  - b. Compare the credentials needed for careers in health care, including certification, registration, and licensure.
6. Discuss professional ethics.
  - a. Explain professional ethics.
  - b. Discuss confidentiality.
  - c. Discuss HIPAA, the Health Insurance Portability and Accountability Act of 1996.
7. Discuss legal responsibility and client's rights.
  - a. Explain torts and legal responsibility.
  - b. Identify ways to promote clients' rights and privacy.
  - c. Discuss the requirement for health care workers to undergo a background check.
8. Explain standard precautions.
  - a. Explain importance of standard precautions in life practices and health care.
  - b. Explain the state and federal government's role in standard precautions.
  - c. Relate standard precautions to the transmission of infectious diseases including HIV, AIDS, HBV, and TB.
9. Utilize standard precautions.
  - a. Demonstrate hand-washing technique.
  - b. Demonstrate donning and removing clean gloves.
10. Perform basic emergency procedures.
  - a. Explain first aid procedures for sudden illness.
  - b. Explain first aid procedures for accidents.
11. Perform advanced emergency procedures.
  - a. Perform CPR.
  - b. Demonstrate first aid for an obstructed airway.
12. Explain medical terminology.
  - a. Spell designated medical terms correctly.
  - b. Demonstrate the use of medical references to spell medical terms correctly.
  - c. Define and divide medical terms into root words, prefixes, and suffixes.
13. Recognize and use medical terminology.
  - a. Interpret the common medical abbreviations and symbols including meanings and uses.
  - b. Demonstrate the use of medical terms and abbreviations in reading, speaking, interpreting, and writing simulated medical records.

14. Review the relationship among cells, tissues, organs, and systems.
  - a. Review the main parts of a cell.
  - b. Review the functions of the main parts of a cell.
  - c. Compare types of tissues and their relationships to body organs and systems.
15. Identify the body planes, directions, and cavities.
  - a. Identify the names of the planes and the directional terms.
  - b. Locate the body cavities.
  - c. Identify the body organs in each cavity.
  - d. Describe the abdominal regions.
16. Interpret the basic structures and functions of the integumentary system.
  - a. Identify the parts of the integumentary system.
  - b. Explain the functions of the integumentary system.
  - c. Discuss related diseases and disorders.
17. Perform the patient care procedures related to the integumentary system.
  - a. Demonstrate patient hygiene.
  - b. Perform bed-making skills.
  - c. Perform patient positioning to prevent pressure areas.
18. Interpret the basic structures and functions of the muscular system.
  - a. Identify major muscles.
  - b. Explain the function of the muscles.
  - c. Discuss related diseases and disorders.
  - d. Demonstrate active range of motion exercises and indications for use.
19. Interpret the basic structure and function of the skeletal system.
  - a. Identify the bones of the body.
  - b. Explain functions of the skeletal system.
  - c. Discuss related diseases and disorders.
  - d. Demonstrate procedures for patient transfer using a stretcher, wheelchair, or a pneumatic lift.
20. Interpret the basic structures and functions of the circulatory system.
  - a. Identify components of blood and their function.
  - b. Identify the types of blood vessels and the action of each.
  - c. Identify the anatomy of the heart.
  - d. Explain the flow of blood through the heart.
  - e. Discuss related diseases and disorders.
21. Measure vital signs.
  - a. Measure oral temperature.
  - b. Explain procedures for measuring axillary, rectal, and tympanic temperatures.
  - c. Identify the body's pulse points.
  - d. Demonstrate radial pulse measurement.
  - e. Measure blood pressure.
22. Interpret the basic structures of the respiratory system.
  - a. Identify the structures of the respiratory system.
  - b. Discuss related diseases and disorders.
  - c. Auscultate lung sounds.

23. Interpret the basic functions of the respiratory system.
  - a. Discuss how gas exchange occurs in the lungs.
  - b. Recognize factors that cause respiratory disorders.
  - c. Count respirations.
24. Interpret the basic structures and functions of the digestive system.
  - a. Identify organs of the digestive system.
  - b. Discuss the functions of organs of the digestive system.
  - c. Discuss related diseases and disorders.
25. Examine the relationship of food and health.
  - a. Define terms associated with nutrition.
  - b. Identify the components of the food guide pyramid with examples of each.
  - c. Describe basic therapeutic diets.
  - d. Demonstrate how to assist/feed a patient with a disability.
26. Interpret the basic structures and functions of the urinary system.
  - a. Identify structures of the urinary system.
  - b. State the functions of each structure of the urinary system.
  - c. Discuss related diseases and disorders.
27. Determine the importance of intake and output measurement.
  - a. Define terms associated with intake and output.
  - b. Calculate intake and output measurements.
  - c. Convert intake and output measurements to metric equivalents.
  - d. Discuss urinary catheterization in classroom lab setting.
28. Interpret the basic structures and functions of the nervous system.
  - a. Identify the major structures and functions of the nervous system.
  - b. Recognize procedures for neurological exam.
  - c. Perform neurological exams.
  - d. Discuss related diseases and disorders.
29. Interpret basic structure and functions of the sensory systems.
  - a. Label the basic structures of the sensory organs.
  - b. Identify the functions of the sensory organs.
30. Interpret the basic structures and functions of the female reproductive system.
  - a. Identify the major structures and functions of the female reproductive system.
  - b. Discuss diseases and disorders of the female reproductive system.
  - c. Discuss the procedures of a breast exam.
  - d. Perform breast exam on model in lab.
31. Interpret the basic structures and functions of the male reproductive system.
  - a. Identify major structures and functions of the male reproductive system.
  - b. Discuss diseases and disorders of the male reproductive system.
  - c. Discuss procedures of a testicular exam.
  - d. Perform testicular exam on model in lab.
32. Interpret the basic structures of the endocrine system.
  - a. Define key terms related to the endocrine system.
  - b. Label structures of the endocrine system.
33. Interpret the basic functions of the endocrine system.
  - a. Analyze the actions of hormones on various body functions.

- b. Recognize diseases and disorders of the endocrine system.
- 34. Review facility policies related to Allied Health II.
  - a. Discuss responsibilities of clinical rotation.
  - b. Discuss school district policies.
- 35. Explain procedures related to infection control.
  - a. Demonstrate a sterile procedure maintaining a sterile field.
  - b. Describe basic techniques to prepare, wrap, and sterilize instruments.
  - c. Observe a surgical scrub.
  - d. Discuss repair of medical equipment by biomedical personnel.
- 36. Discuss stages of growth and development.
  - a. Review the reproductive system.
  - b. Identify physical, mental, emotional, and social development characteristics of each of Erikson's stages of development from infancy through late adulthood.
  - c. Identify Maslow's Hierarchy of Human Needs.
  - d. Discuss cultural practices that affect needs.
- 37. Explain concepts related to death and dying.
  - a. Describe the five stages of grief.
  - b. Discuss hospice care.
  - c. Define living will, advance directives, and organ donation.
- 38. Demonstrate job seeking skills.
  - a. Prepare a resume containing essential information utilizing word processing software.
  - b. Complete a job application form on paper or online.
  - c. Discuss procedures for job interviews.
  - d. Demonstrate the role of an applicant in a job interview.
  - e. Describe job interview etiquette.
- 39. Explain job keeping skills.
  - a. Discuss positive relations with clients and peers.
  - b. Write a letter of resignation.

## Appendix A: CAAHEP Standards and Guidelines for Medical Assisting Educational Programs<sup>1</sup>

- MDA 1 The student will be competent in anatomy and physiology.
- MDA 2 The student will be competent in medical terminology.
- MDA 3 The student will be competent in medical law and ethics.
- MDA 4 The student will be competent in psychology.
- MDA 5 The student will be competent in communication.
- MDA 6 The student will be competent in medical assisting administrative procedures.
- MDA 7 The student will be competent in medical assisting clinical procedures.
- MDA 8 The student will be competent in professional components.

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<sup>1</sup> *Standards and guidelines for medical assisting educational programs adopted by the Commission on Accreditation of Allied Health Education Programs and The American Association of medical Assistants.* (2003). Retrieved November 9, 2004, from <http://www.caahep.org/caahep/accredit.asp?pdraft=yes&doc=MA>

## Appendix B: Related Academic Standards

### RELATED ACADEMIC TOPICS FOR COMMUNICATIONS

- C1 Interpret written material.
- C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
- C3 Listen, comprehend, and take appropriate actions.
- C4 Access, organize, and evaluate information.
- C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
- C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.

### EXPANDED TOPICS FOR COMMUNICATIONS

TOPIC C1: Interpret written material.

- C1.01 Read and follow complex written directions.
- C1.02 Recognize common words and meanings associated with a variety of occupations.
- C1.03 Adjust reading strategy to purpose and type of reading.
- C1.04 Use sections of books and reference sources to obtain information.
- C1.05 Compare information from multiple sources and check validity.
- C1.06 Interpret items and abbreviations used in multiple forms.
- C1.07 Interpret short notes, memos, and letters.
- C1.08 Comprehend technical words and concepts.
- C1.09 Use various reading techniques depending on purpose for reading.
- C1.10 Find, read, understand, and use information from printed matter or electronic sources.

TOPIC C2: Interpret visual materials (maps, charts, graphs, tables, etc.).

- C2.01 Use visuals in written and in oral presentations.
- C2.02 Recognize visual cues to meaning (layout, typography, etc.).
- C2.03 Interpret and apply information using visual materials.

TOPIC C3: Listen, comprehend, and take appropriate action.

- C3.01 Identify and evaluate orally-presented messages according to purpose.
- C3.02 Recognize barriers to effective listening.
- C3.03 Recognize how voice inflection changes meaning.
- C3.04 Identify speaker signals requiring a response and respond accordingly.
- C3.05 Listen attentively and take accurate notes.
- C3.06 Use telephone to receive information.
- C3.07 Analyze and distinguish information from formal and informal oral presentations.

TOPIC C4: Access, organize, and evaluate information.

- C4.01 Distinguish fact from opinion.
- C4.02 Use various print and non-print sources for specialized information.
- C4.03 Interpret and distinguish between literal and figurative meaning.
- C4.04 Interpret written or oral communication in relation to context and writer's point of view.
- C4.05 Use relevant sources to gather information for written or oral communication.
- TOPIC C5: Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
- C5.01 Select appropriate words for communication needs.
- C5.02 Use reading, writing, listening, and speaking skills to solve problems.
- C5.03 Compose inquiries and requests.
- C5.04 Write persuasive letters and memos.
- C5.05 Edit written reports, letters, memos, and short notes for clarity, correct grammar, and effective sentences.
- C5.06 Write logical and understandable statements, phrases, or sentences for filling out forms, for correspondence or reports.
- C5.07 Write directions or summaries of processes, mechanisms, events, or concepts.
- C5.08 Select and use appropriate formats for presenting reports.
- C5.09 Convey information to audiences in writing.
- C5.10 Compose technical reports and correspondence that meet accepted standards for written communications.
- TOPIC C6: Communicate ideas and information using oral and written forms for a variety of audiences and purposes.
- C6.01 Give complex oral instructions.
- C6.02 Describe a business or industrial process/mechanism.
- C6.03 Participate effectively in group discussions and decision making.
- C6.04 Produce effective oral messages utilizing different media.
- C6.05 Explore ideas orally with partners.
- C6.06 Participate in conversations by volunteering information when appropriate and asking relevant questions when appropriate.
- C6.07 Restate or paraphrase a conversation to confirm one's own understanding.
- C6.08 Gather and provide information utilizing different media.
- C6.09 Prepare and deliver persuasive, descriptive, and demonstrative oral presentations.

### **RELATED ACADEMIC TOPICS FOR MATHEMATICS**

- M1 Relate number relationships, number systems, and number theory.
- M2 Explore patterns and functions.
- M3 Explore algebraic concepts and processes.
- M4 Explore the concepts of measurement.
- M5 Explore the geometry of one-, two-, and three-dimensions.

- M6 Explore concepts of statistics and probability in real world situations.  
M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

### **EXPANDED TOPICS FOR MATHEMATICS**

TOPIC M1: Relate number relationships, number systems, and number theory.

- M1.01 Understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, and scientific notation) in real world and mathematical problem situations.  
M1.02 Develop number sense for whole numbers, fractions, decimals, integers, and rational numbers.  
M1.03 Understand and apply ratios, proportions, and percents in a wide variety of situations.  
M1.04 Investigate relationships among fractions, decimals, and percents.  
M1.05 Compute with whole numbers, fractions, decimals, integers, and rational numbers.  
M1.06 Develop, analyze, and explain procedures for computation and techniques for estimations.  
M1.07 Select and use an appropriate method for computing from among mental arithmetic, paper-and-pencil, calculator, and computer methods.  
M1.08 Use computation, estimation, and proportions to solve problems.  
M1.09 Use estimation to check the reasonableness of results.

TOPIC M2: Explore patterns and functions.

- M2.01 Describe, extend, analyze, and create a wide variety of patterns.  
M2.02 Describe and represent relationships with tables, graphs, and rules.  
M2.03 Analyze functional relationships to explain how a change in one quantity results in a change in another.  
M2.04 Use patterns and functions to represent and solve problems.  
M2.05 Explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.  
M2.06 Use a mathematical idea to further their understanding of other mathematical ideas.  
M2.07 Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as art, music, and business.

TOPIC M3: Explore algebraic concepts and processes.

- M3.01 Represent situations and explore the interrelationships of number patterns with tables, graphs, verbal rules, and equations.  
M3.02 Analyze tables and graphs to identify properties and relationships and to interpret expressions and equations.  
M3.03 Apply algebraic methods to solve a variety of real world and mathematical problems.

TOPIC M4: Explore the concepts of measurement.

- M4.01 Estimate, make, and use measurements to describe and compare phenomena.
- M4.02 Select appropriate units and tools to measure to the degree of accuracy required in a particular situation.
- M4.03 Extend understanding of the concepts of perimeter, area, volume, angle measure, capacity, and weight and mass.
- M4.04 Understand and apply reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs.

TOPIC M5: Explore the geometry of one-, two-, and three-dimensions.

- M5.01 Identify, describe, compare, and classify geometric figures.
- M5.02 Visualize and represent geometric figures with special attention to developing spatial sense.
- M5.03 Explore transformations of geometric figures.
- M5.04 Understand and apply geometric properties and relationships.
- M5.05 Classify figures in terms of congruence and similarity and apply these relationships.

TOPIC M6: Explore the concepts of statistics and probability in real world situations.

- M6.01 Systematically collect, organize, and describe data.
- M6.02 Construct, read, and interpret tables, charts, and graphs.
- M6.03 Develop an appreciation for statistical methods as powerful means for decision making.
- M6.04 Make predictions that are based on exponential or theoretical probabilities.
- M6.05 Develop an appreciation for the pervasive use of probability in the real world.

TOPIC M7: Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

- M7.01 Use computers and/or calculators to process information for all mathematical situations.
- M7.02 Use problem-solving approaches to investigate and understand mathematical content.
- M7.03 Formulate problems from situations within and outside mathematics.
- M7.04 Generalize solutions and strategies to new problem situations.

**RELATED ACADEMIC TOPICS FOR SCIENCE**

- S1 Explain the Anatomy and Physiology of the human body.
- S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
- S3 Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.
- S4 Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.
- S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
- S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.
- S7 Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance, population genetics, the structure and function of DNA, and current applications of DNA technology.
- S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

**EXPANDED TOPICS FOR SCIENCE**

- TOPIC S1: Explain the Anatomy and Physiology of the human body.
- S1.01 Recognize common terminology and meanings.
- S1.02 Explore the relationship of the cell to more complex systems within the body.
- S1.03 Summarize the functional anatomy of all the major body systems.
- S1.04 Relate the physiology of the major body systems to its corresponding anatomy.
- S1.05 Compare and contrast disease transmission and treatment within each organ system.
- S1.06 Explore the usage of medical technology as related to human organs and organ systems.
- S1.07 Explain the chemical composition of body tissue.
- TOPIC S2: Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
- S2.01 Identify the major types and structures of plants, viruses, monera, algae protista, and fungi.
- S2.02 Explain sexual and asexual reproduction.
- S2.03 Describe the ecological importance of plants as related to the environment.
- S2.04 Analyze the physical chemical and behavioral process of a plant.

- TOPIC S3: Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.
- S3.01 Explain the morphology, anatomy, and physiology of animals.  
S3.02 Describe the characteristics, behaviors, and habitats of selected animals.
- TOPIC S4: Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.
- S4.01 Examine minerals and their identification, products of the rock cycle, byproducts of weathering, and the effects of erosion.  
S4.02 Relate the Hydrologic Cycle to include groundwater its zones, movement, and composition; surface water systems, deposits, and runoff.  
S4.03 Consider the effects of weather and climate on the environment.  
S4.04 Examine the composition of seawater; wave, tides, and currents; organisms, environment, and production of food; energy, food and mineral resources of the oceans.
- TOPIC S5: Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
- S5.01 Examine the science of chemistry to include the nature of matter, symbols, formulas and nomenclature, and chemical equations.  
S5.02 Identify chemical reactions including precipitation, acids-bases, and reduction-oxidation.  
S5.03 Explore the fundamentals of chemical bonding and principles of equilibrium.  
S5.04 Relate the behavior of gases.  
S5.05 Investigate the structure, reactions, and uses of organic compounds; and investigate nuclear chemistry and radiochemistry.
- TOPIC S6: Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.
- S6.01 Examine fundamentals of motion of physical bodies and physical dynamics.  
S6.02 Explore the concepts and relationships among work, power, and energy.  
S6.03 Explore principles, characteristics, and properties of electricity, magnetism, light energy, thermal energy, and wave energy.  
S6.04 Identify principles of modern physics related to nuclear physics.
- TOPIC S7: Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance; population genetics, the structure and function of DNA, and current applications of DNA technology.

- S7.01 Examine principles, techniques, and patterns of traits and inheritance in organisms.
- S7.02 Apply the concept of population genetics to both microbial and multicellular organism.
- S7.03 Identify the structure and function of DNA and the uses of DNA technology in science, industry, and society.
- TOPIC S8: Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.
- S8.01 Apply the components of scientific processes and methods in classroom and laboratory investigations.
- S8.02 Observe and practice safe procedures in the classroom and laboratory.
- S8.03 Demonstrate proper use and care for scientific equipment.
- S8.04 Investigate science careers, and advances in technology.
- S8.05 Communicate results of scientific investigations in oral, written, and graphic form.

## Appendix C: Workplace Skills for the 21<sup>st</sup> Century<sup>2</sup>

- WP1 Allocates resources (time, money, materials and facilities, and human resources).
- WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
- WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
- WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.
- WP5 Selects, applies, and maintains/troubleshoots technology.
- WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
- WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
- WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

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<sup>2</sup> Secretary's commission on achieving necessary skills. (1991). Retrieved July 13, 2004, from <http://wdr.doleta.gov/SCANS/>

## Appendix D: National Educational Technology Standards for Students<sup>3</sup>

- T1 Basic operations and concepts
- Students demonstrate a sound understanding of the nature and operation of technology systems.
  - Students are proficient in the use of technology.
- T2 Social, ethical, and human issues
- Students understand the ethical, cultural, and societal issues related to technology.
  - Students practice responsible use of technology systems, information, and software.
  - Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
- T3 Technology productivity tools
- Students use technology tools to enhance learning, increase productivity, and promote creativity.
  - Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.
- T4 Technology communications tools
- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
  - Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
- T5 Technology research tools
- Students use technology to locate, evaluate, and collect information from a variety of sources.
  - Students use technology tools to process data and report results.
  - Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
- T6 Technology problem-solving and decision-making tools
- Students use technology resources for solving problems and making informed decisions.
  - Students employ technology in the development of strategies for solving problems in the real world.

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<sup>3</sup> ISTE: *National educational technology standards (NETS)*. (2000). Retrieved July 13, 2004, from <http://cnets.iste.org/>