# LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

**SPECIAL NOTE**:
This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

**TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):**

Please check with the LCC bookstore http://www.labette.edu/bookstore for the required texts for this class.

**COURSE NUMBER:** DNAS 111

**COURSE TITLE:** DENTAL MATERIALS I

**SEMESTER CREDIT HOURS:** 4

**DEPARTMENT:** Dental Assistant

**DIVISION:** Health Science

**PREREQUISITES:** Acceptance into Dental Assistant Program

**REVISION DATE:** February 2016

**COURSE DESCRIPTION:**
This course will cover: identification of materials used in general dentistry, physical and chemical properties of dental materials, functions and classifications of dental materials, waste management, and regulatory agencies. Students will learn the principles of safety and aseptic technique involved in working with materials and equipment as well as laboratory practice with impression materials and gypsum products.

**COURSE OUTCOMES AND COMPETENCIES:**
**Students who successfully complete this course will be able to:**

1. List and discuss government agencies and professional organizations that have regulatory and advisory roles in the practice of dentistry.

- Explain the difference between regulations and recommendations.
- Identify four professional sources for dental information.
- Name the professional organizations for dentists, dental assistants, and dental hygienists.
- Name the premier infection control educational organization in dentistry.
- Describe the role of the Centers for Disease Control and Prevention.
- Explain the role of OSHA regarding the safety and health of workers.
- Describe the role of the Environmental Protection Agency in relation to dentistry.
- Describe the role of the Food and Drug Administration in relation to dentistry.

2. Discuss proper use, storage, handling and disposal of chemicals used in the dental practice as well as regulatory guidelines.

- Describe the potential long term and short term effects of exposure to chemicals.
- Describe three common methods of chemical exposure.
- Explain OSHA Hazard Communication Standard and explain their record keeping requirements.
- List the five components of a hazard communication program.
- Discuss purpose of material safety data sheet.
- Identify four methods of personal protection against chemical exposure.
- Describe in general how chemicals should be stored.
- Demonstrate proper technique for using information from a MSDS to create a chemical label for a secondary container.
- Identify types of toxic and regulated waste generated in a dental practice.
- Describe how to package regulated waste for transport.
- Summarize classifications of waste.
- List dental materials that may be regulated and appropriate disposal methods.

3. Discuss the significance of biofilm in dental unit waterlines.

- Explain why dental unit waterlines (DUWLs) are a favorable environment for formation of biofilm.
- List examples of biofilm present in a dental practice.
- Explain the role of biofilm in DUWL contamination.
- List the factors involved in bacterial contamination of dental unit water.
- Identify the primary source of microorganisms in dental unit water.
- Describe methods used to reduce bacterial contamination in DUWLs.
- Discuss the Centers for Disease Control and Prevention recommendations for dental unit water quality.
- Be able to list methods for reducing bacterial contamination in dental unit waterlines.
- Discuss the proper technique for obtaining a water sample and preparing it for shipping.

4. Describe and demonstrate proper mixing and/or application of various types of restorative and esthetic dental materials.

- Discuss how a dental material is evaluated before it is marketed to the profession.
- Discuss the differences between direct and indirect restorative materials.
- Describe the properties of amalgam and its application in restoring teeth.
- Describe the properties of composite resin materials and their application in restoring teeth.
- Describe the properties of glass ionomers and their application in restoring teeth.
- Describe the properties of temporary restorative materials and their application in restoring teeth.
- Discuss the use of tooth whitening products.
- Describe the properties of porcelain and its application in restoring teeth.
- Describe the properties of gold alloys and their application in restoring teeth.
- List the agencies responsible for setting standards and specifications of dental materials.

- Demonstrate the skills utilized in mixing and/or transferring amalgam, composite resin, intermediate restorative materials and preparation of acrylic resin for provisional coverage.

5. Describe and demonstrate proper mixing and/or application of a variety of supplemental dental materials**.**

- Discuss how the sensitivity of a tooth determines what type of dental material is selected for procedure.
- Discuss how dental material is selected for a procedure.
- Discuss how and why cavity liners are used in restoring tooth structure.
- Discuss how and why dentin sealers are used in restoring tooth structure.
- Discuss how and why dental bases are used in restoring tooth structure.
- Describe the etching process of a tooth and its importance in the bonding of tooth and material.
- Describe bonding systems and how they provide better adherence of dental materials to tooth structure.
- Demonstrate the skills utilized in mixing and/or applying calcium hydroxide, varnish and desensitizers, cements as bases, etch and bonding systems.

6. Classify dental cements and discuss indications for use and demonstrate manipulation and application of cements.

- Describe luting cements and differentiate between permanent and temporary cements.
- Discuss the factors that influence luting cements.
- List five cements commonly utilized in dentistry and identify their similarities and differences.
- Mix and prepare the following for cementation: polycarboxylate, glass ionomer, composite resin, XOE, and zinc phosphate.
- Demonstrate removal of cement from permanent and temporary cementations.

7. Discuss classifications of impression materials and demonstrate proper mixing techniques and/or application for each.

- List the three types of impressions taken in a dental office.
- Describe the types of impression trays and their characteristics of use.
- Discuss elastomeric impression materials and their uses, mixing techniques, and application.
- Discuss hydrocolloid impression materials and their uses, mixing techniques and application.
- Discuss elastomeric impression materials and their uses, mixing techniques and application
- List the various categories of impression materials and explain their differences.
- Explain the importance of an occlusal registration and describe its use in a procedure
- Demonstrate proper mixing technique for alginate impression material.
- Demonstrate proper technique for obtaining a maxillary and a mandibular preliminary impression.

- Mix a paste final impression material.
- Take a wax bite registration.
- Demonstrate proper technique for mixing an Automix impression material.

8. Discuss laboratory materials, equipment and procedures and demonstrate proper use of equipment as well as proper mixing techniques of gypsum products.

- Discuss safety precautions that should be taken in the dental laboratory.
- List the types of equipment found in a dental laboratory and describe their uses.
- Describe the use of the face bow when measuring centric relationship of teeth.
- Discuss and describe various types of gypsum products and their role in the making of dental models.
- List the three types of custom impression trays and describe their use in dentistry.
- Identify the types of dental waxes and describe their use in dentistry.
- Demonstrate preparing and mixing model plaster or stone for pouring models.
- Pour anatomic and base portions of diagnostic casts, removed casts from rays, trim and finish correctly.
- Identify dental models and explain how they are used in dentistry.
- Construct an acrylic resin custom tray.
- Create a light cured custom tray.
- Construct a vacuum formed custom tray.