



COURSE OUTLINE

DIVISION: Workforce Development

COURSE: DLA 2208 Expanded Functions II- Restorative

Date: Spring 2019

Credit Hours: 2

Prerequisites: Consent of the Program Coordinator

Delivery Method:

<input checked="" type="checkbox"/> Lecture	1 Contact Hours (1 contact = 1 credit hour)
<input type="checkbox"/> Seminar	0 Contact Hours (1 contact = 1 credit hour)
<input checked="" type="checkbox"/> Lab	3 Contact Hours (2-3 contact = 1 credit hour)
<input type="checkbox"/> Clinical	0 Contact Hours (3 contact = 1 credit hour)
<input type="checkbox"/> Online	
<input checked="" type="checkbox"/> Blended	

Offered: **Fall** **Spring** **Summer**

CATALOG DESCRIPTION:

This condensed course provides participants with online, didactic, lab, and clinical patient experiences to increase proficiency or introduce various aspects of restorative dentistry including placement of direct restorative materials. The purpose of this course is to improve existing restorative clinical skills or introduce participants to the basic techniques of restorative dentistry to become SAFE BEGINNERS in the practice of restorative dentistry. Content is based on participants' prior knowledge and clinical competency on the dental assisting process of care, dental anatomy, dental materials, head and neck anatomy, and local anesthetic. The course provides a review of dental materials, including placing a rubber dam, placement of cavity liners, mercury assisting, and amalgam, composite and dentin bonding agent properties. The main focus of the course is placement techniques and assessment for functional composite and amalgam restorations, to prepare students with the skill needed for entry level as an expanded functions clinician. Upon successful completion, participants will be competent in placement of direct restorative materials, and assessing the quality of the restorations, take material or digital final impressions, and perform pulp vitality testing. All training is approved by the Illinois State Dental Society and dentists experienced in restorative dentistry and teaching. Upon successful completion of this course, participants will meet the criteria for Illinois State Restorative Expanded Functions certification. Success in this course requires knowledge in basic computer skills, head and neck anatomy, pharmacology, dental anatomy, dental materials, and dental assisting skills. There are two pathways for enrollment in this course. Contact the Program Coordinator to document your pathway.

GENERAL EDUCATION GOALS ADDRESSED

[See last page for Course Competency/Assessment Methods Matrix.]

Upon completion of the course, the student will be able:

[Choose up to three goals that will be formally assessed in this course.]

- To apply analytical and problem solving skills to personal, social, and professional issues and situations.
- To communicate successfully, both orally and in writing, to a variety of audiences.
- To construct a critical awareness of and appreciate diversity.
- To understand and use technology effectively and to understand its impact on the individual and society.
- To develop interpersonal capacity.
- To recognize what it means to act ethically and responsibly as an individual and as a member of society.
- To recognize what it means to develop and maintain a healthy lifestyle in terms of mind, body, and spirit.
- To connect learning to life.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals. See last page for more information.]

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

1. Demonstrate a comprehensive understanding of dental nomenclature.
 - 1.1. Be able to identify teeth using the Universal/National Systems for numbering
 - 1.2. Be able to identify teeth using the Palmer system for numbering
 - 1.3. Be able to identify teeth using the Federation Dentaire Internationale systems for numbering
 - 1.4. List the five surfaces that each tooth has, and their appropriate abbreviations.
 - 1.5. Be able to divide the dentition into Arches, quadrants, sextants
 - 1.6. Be able to identify anatomical contour of teeth
2. Demonstrate a comprehensive understanding of Caries classification
 - 2.1. Be able to classify cavities using Black's Classifications I-VI
3. Demonstrate a comprehensive understanding of Oral anatomy
 - 3.1. Understand the importance of Contact areas
 - 3.2. Understand the importance of Embrasures
 - 3.3. Understand the importance of Anatomical structures of each tooth.
4. Demonstrate a comprehensive understanding of the components of the Periodontium
 - 4.1. Be able to discern Hard and soft dental tissues
 - 4.2. Be able to identify Cementum, its function, and location.
 - 4.3. Be able to identify Alveolar bone and its function.
 - 4.4. Be able to identify periodontal ligament and know its importance.
 - 4.5. Be able to identify the different types of Gingiva
5. Demonstrate a comprehensive understanding of basic occlusion
 - 5.1. Know the characteristics of normal occlusion
 - 5.2. Know the characteristics and causes of Malocclusion
6. Demonstrate a comprehensive understanding and use of Instrumentation.

- 6.1. Be able to identify cutting and noncutting instruments
- 6.2. Be able to understand the design of cutting and noncutting instruments
- 6.3. Be able to select and use the appropriate noncutting instrument in placement of a provisional restoration, amalgam or composite.
- 6.4. Know the different grasps associated with cutting and noncutting instruments.
- 6.5. Understand the different instrument motions used with hand instruments.
7. Demonstrate a comprehensive understanding of the properties and preparation of liners and bases for pulpal protection.
 - 7.1. Be able to place the appropriate Cements, Bases and Liners
 - 7.2. Know the different Cavity Preparation forms
 - 7.3. Know the different levels of Pulpal Involvement and treatment of Cavity Preparations
 - 7.4. Know the different Types of Restorative Dental Materials
 - 7.5. Identify and choose appropriate Cavity Liners/Low-strength Base, cavity varnish, base, or desensitizer.
8. Demonstrate a comprehensive knowledge and application of Rubber dam clamp placement and removal
 - 8.1. Know the Advantages and disadvantages of using a dental dam.
 - 8.2. Know the Contraindications to Dental Dam Isolation.
 - 8.3. Be able to identify and use the dental dam materials and equipment properly.
 - 8.4. Be able to prepare the patient before Dental Dam Placement
 - 8.5. Know the Placement and Removal Procedures for the Dental Dam
 - 8.6. Be able to identify alternatives of the Dental Dam
 - 8.7.
9. Demonstrate a comprehensive knowledge and application of Matrix and wedge techniques
 - 9.1. Understand the placement and position of Wedges
 - 9.2. Be able to properly prepare and place Tofflemire Matrix in the appropriate situation.
 - 9.3. Be able to prepare and place Matrix bands in the appropriate situation.
 - 9.4. Be able to prepare and place AutoMatrix in the appropriate situation.
 - 9.5. Be able to prepare and place a Plastic Strip Matrix in the appropriate situation.
 - 9.6. Be able to prepare and place a Sectional Matrix in the appropriate situation.
10. Demonstrate a comprehensive knowledge of the properties of different Dental materials
 - 10.1. Understand the properties of Composite Resin Cement
 - 10.2. Understand the properties of Amalgam
 - 10.3. Understand the properties of Provisional restorations
 - 10.4. Understand the properties of Etchant
 - 10.5. Understand the properties of Compomers
 - 10.6. Understand the properties of Bonding agents/Adhesives
 - 10.7. Be able to identify the terms associated with dental materials such as: Acidity, adhesion, biting forces, corrosion, dimensional change, elasticity, flow, galvanism, hardness, microleakage, retention, bonding, solubility, thermal properties, viscosity, and wettability.

11. Demonstrate a comprehensive knowledge and application of Amalgam placement and carving
 - 11.1. Understand and apply Amalgam Restorative Materials
 - 11.2. Know the different types and shapes of amalgam materials
 - 11.3. Use the proper armamentarium in placement of Amalgam
 - 11.4. Be able to properly pack, burnish and carve amalgam.
12. Demonstrate a comprehensive knowledge and application of Composite placement, packing and finishing
 - 12.1. Understand and properly place Composite Restorative Materials
 - 12.2. Be able to choose the correct type and shade of material for placement.
 - 12.3. Use the proper armamentarium in the placement of Composite materials.
 - 12.4. Understand the correct placement, packing, finishing and polishing of Composite Materials.
 - 12.5. Understand and properly place Glass Ionomer Restorations.
 - 12.6. Be able to choose the correct type of GI to use depending on location in the mouth and longevity needed.
13. Demonstrate a basic knowledge of Pulp Vitality Testing.
 - 13.1. Be able to select the appropriate method for testing cold sensitivity.
 - 13.2. Understand the mechanism of an electric pulp tester.
 - 13.3. Understand the instruments and supplies used for manual vitality testing.
14. Demonstrate a basic knowledge of taking material and digital scans for Final Impressions.
 - 14.1. Understand the importance of creating a highly accurate impression for a high-quality restoration.
 - 14.2. Have a basic understanding of the materials used for final impressions.
 - 14.3. Understand the importance of a dry field.
 - 14.4. Understand the basic steps in taking a digital impression.
 - 14.5. Have a basic understanding of CAD/CAM techniques.
 - 14.6. Be able to identify issues with both material and digital scans before sending to the dental lab.
 - 14.7. Know the advantages and disadvantages of both material and digital impressions.

MAPPING LEARNING OUTCOMES TO GENERAL EDUCATION GOALS

[For each of the goals selected above, indicate which outcomes align with the goal.]

Goals	Outcomes
First Goal	
To understand and use technology effectively and to understand its impact on the individual and society.	10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 11.1, 11.2, 11.3, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6
Second Goal	
To communicate successfully, both	1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 3.1, 3.2, 3.3

orally and in writing, to a variety of audiences	
Third Goal	

COURSE TOPICS AND CONTENT REQUIREMENTS:

- I. Dental Nomenclature.
 - a. Universal/National Systems for numbering
 - b. Palmer system for numbering
 - c. Federation Dentaire Internationale systems for numbering
 - d. Tooth Surfaces
 - i. abbreviations
 - e. Arches, quadrants, sextants
 - f. Anatomical contour of teeth
 - i. Grooves
 - ii. Cusp tip
 - iii. Ridges
 - iv. Marginal ridges
 - v. Fossae
 - vi. Fissure
 - vii. Walls of cavity preparations
 1. Pulpal wall (floor)
 2. Axial wall
 3. Cavosurface margin
- II. Caries classification
 - a. G.V. Black
 - b. Class I-VI
- III. Oral anatomy
 - a. Contact areas
 - b. Embrasures
 - c. Anatomical structures
 - viii. Buccal groove
 - ix. Central groove
 - x. Cingulum
 - xi. Cusp
 - xii. Developmental grooves
 - xiii. Fissures
 - xiv. Fossa
 - xv. Furcation
 - xvi. Lobes
 - xvii. Mamelons
 - xviii. Marginal grooves
 - xix. Marginal ridges

- xx. Oblique ridge
 - xxi. Pits
 - xxii. Ridge
 - xxiii. Supplemental groove
 - xxiv. Transverse ridge
 - xxv. Triangular ridge
 - xxvi. Trifurcated
- IV. Components of the Periodontium
- d. Hard and soft dental tissues
 - e. Cementum
 - f. Alveolar bone
 - g. Periodontal ligament
 - i. Periodontal fiber groups
 - 1. Periodontal fiber groups
 - 2. Gingival fiber groups
 - h. Gingiva
 - i. Alveolar mucosa
 - ii. Mucogingival junction
 - iii. Attached gingiva
 - iv. Gingival groove
 - v. Interdental gingiva
 - vi. Gingival sulcus
 - vii. Epithelial attachment
 - viii. Marginal gingiva
- V. Basic occlusion
- a. Characteristics of normal occlusion
 - i. Centric occlusion
 - ii. Maximum contact
 - iii. Overlap
 - iv. Buccal grooves
 - v. Cusp positions
 - b. Malocclusion
 - i. Malposition's of individual teeth
 - ii. Etiology of malocclusion
 - iii. Angle's Classifications of Malocclusion
- VI. Instrumentation
- a. Identify noncutting instruments
 - i. Condensers
 - ii. Carvers
 - iii. Burnisher
 - iv. Plastic instrument
 - v. Cement spatula
 - b. Design of cutting and noncutting instruments
 - i. Numeric Formulas
 - ii. Black's Three-number formula
 - iii. Black's Four-number formula

- c. Instrument Selection
 - i. Condensing
 - ii. Carving
 - iii. Burnishing
 - iv. Placing
 - v. Mixing
- d. Instrument Grasps
 - i. Pen grasp
 - ii. Palm-thumb grasp
- e. Instrument Motions
 - i. Chopping
 - ii. Pulling
 - iii. Pushing
 - iv. Rotating
 - v. Scraping
 - vi. thrusting
- VII. Properties and preparation of liners and bases for pulpal protection.
 - a. Placing Cements, Bases and Liners
 - b. Cavity Preparation forms
 - i. Outline form
 - ii. Resistance form
 - iii. Retention form
 - iv. Convenience form
 - v. Finishing or refinement
 - vi. Cleansing or debridement of the cavity preparation
 - c. Pulpal Involvement and treatment of Cavity Preparations
 - i. Ideal level
 - ii. Beyond ideal
 - iii. Near exposure
 - iv. Pulp exposure
 - v. Direct pulp capping
 - vi. Indirect pulp capping
 - d. Types of Restorative Dental Materials
 - i. Class I
 - ii. Class II
 - iii. Class III
 - e. Cavity Liners/Low-strength Base
 - i. Calcium hydroxide
 - ii. ZOE
 - iii. Glass Ionomer
 - f. Cavity Varnish
 - g. Cement Bases/High-strength Base
 - i. Glass Ionomers
 - ii. Hybrid ionomer
 - iii. Reinforced ZOE
 - iv. Zinc Phosphate

- v. Polycarboxylate
 - h. Desensitizers
 - i. Treatment or prevention of hypersensitivity
 - ii. Hydroxyethyl methacrylate (HEMA) and Glutaraldehyde
- VIII. Application of Rubber dam clamp placement and removal
 - a. Advantages and disadvantages
 - b. Contraindications to Dental Dam Isolation
 - c. Materials and Equipment
 - d. Preparation before Dental Dam Placement
 - e. Placement and Removal Procedures for the Dental Dam
 - f. Alternatives of the Dental Dam
- IX. Matrix and wedge techniques
 - a. Matrices
 - b. Wedges
 - c. Tofflemire Matrix
 - d. Matrix bands
 - e. AutoMatrix
 - f. Plastic Strip Matrix
 - g. Sectional Matrix
- X. Dental Materials
 - a. Composite Resin Cement
 - b. Amalgam
 - c. Provisional restorations
 - d. Etchant
 - e. Compomers
 - f. Bonding agents/Adhesives
 - i. Enamel bonding
 - ii. Dentin bonding
 - g. Acidity, adhesion, biting forces, corrosion, dimensional change, elasticity, flow, galvanism, hardness, microleakage, retention, bonding, solubility, thermal properties, viscosity, wettability.
- XI. Amalgam placement and carving
 - a. Amalgam Restorative Materials
 - i. Composition
 - ii. Types of Dental Amalgam
 - iii. Mercury Used in Dental Amalgam
 - iv. Forms of Dental Alloy
 - v. Amalgam Properties
 - vi. Amalgam Manipulation
 - vii. Amalgam Bonding
 - viii. A complete Amalgam Procedure
- XII. Composite placement, packing and finishing
 - a. Composite Restorative Materials
 - i. Composition
 - ii. Composite properties
 - iii. Manipulation considerations

- iv. Modifications
 - b. Glass Ionomer Restorations
 - i. Hybrid (or resin-modified) Glass Ionomers
 - ii. Compomers
- XIII. Pulp Vitality Testing
 - a. Cold, percussion, pressure
 - i. Tooth identification
 - b. Electronic pulp testing
 - i. Vital or nonvital
 - ii. Dry field
 - iii. Nonmetallic proximal surface restorations
 - c. Manual pulp testing instruments or supplies
 - i. Ice cube
 - ii. Mirror handle
 - iii. Bite stick/fracture finder
 - iv. Aerosol refrigerant spray
- XIV. Material and Digital Final Impressions
 - a. Accuracy
 - b. Materials used for final impressions.
 - c. Dry field
 - d. Taking a digital impression.
 - i. Importance and usage
 - e. CAD/CAM techniques
 - i. Different brands of CAD
 - ii. Steady hand
 - iii. Accurate scan
 - f. Identify issues
 - i. Margins
 - ii. Gingival extent
 - g. Advantages and disadvantages
 - i. Time saving
 - ii. Optimal restorative materials
 - iii. Learning curve with scanner
 - iv. Tissue retraction
 - v. Isolation
 - vi. Occlusal relationships

INSTRUCTIONAL METHODS:

- Didactic Instruction (16 hours required by Illinois Law)
- Distance Learning
- Pre-Recorded Demonstrations
- Clinical manikin instruction (14 hours required by Illinois Law)
- Human subject instruction
- Guest Lecturers (local dentists)
- Continuing Education Courses

- Dental Clinics

INSTRUCTIONAL MATERIALS:

Public Act 100-0976 Enacted August 19th, 2018

Dentalcare.com

Clinical Manikin

Various Dental Materials

Text:

Dental Assisting: A Comprehensive Approach, 5th Edition, Phinney and Halstead, 2018

Dental Assisting: Theory and Practice, 4th Edition, Darby & Walsh, 2015

American Dental Association: Module: Dental Public Health 2015

Dentistry, Dental Practice, and the Community, 7th Edition, 2019

Pediatric Dentistry, 6th Edition, 2018

Summitt's Fundamentals of Operative Dentistry 4th Edition, 2013

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

A= 90-100

B= 80-89

C= 70-79

D= 60-69

F= 0-59

Course Competency/Assessment Methods Matrix

(Dept/# Course Name)	Assessment Options																																
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment	
	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D							
Demonstrate a comprehensive understanding of dental nomenclature			X	X	X	X	X	X	X			X	X		X	X			X	X		X	X			X	X	X	X	X		X	X
Demonstrate a comprehensive understanding of Caries Classification.			X	X	X	X	X	X	X			X	X		X	X			X	X		X	X			X	X	X	X		X	X	
Demonstrate a comprehensive understanding of the Oral Anatomy.			X	X	X	X	X	X	X			X	X		X	X			X	X		X	X			X	X	X	X		X	X	
Demonstrate a comprehensive understanding of the components of the periodontium.			X	X	X	X	X	X	X			X	X		X	X			X	X		X	X			X	X	X	X		X	X	
Demonstrate a comprehensive understanding of basic occlusion.			X	X	X	X	X	X	X			X	X		X	X			X	X		X	X			X	X	X	X		X	X	
Demonstrate a comprehensive understanding and use of instrumentation.			X	X	X	X	X	X	X			X	X		X	X			X	X		X	X			X	X	X	X		X	X	

Demonstrate a comprehensive understanding of the properties and preparation of liners and bases for pulpal protection.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a comprehensive understanding and application of rubber dam clamp placement and removal.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a comprehensive understanding and application of matrix and wedge techniques.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a comprehensive understanding of the properties of different dental materials.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a comprehensive understanding and application of Amalgam Placement			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a comprehensive understanding and application composite placement, packing and finishing.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a basic understanding of pulp vitality testing.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X
Demonstrate a comprehensive understanding of taking material and digital scan final impressions.			X	X	X	X	X	X	X			X	X		X	X		X	X			X	X	X	X		X	X