

The background features a large, light blue watermark of the University of Florida seal. The seal is circular and contains the text "UNIVERSITY OF FLORIDA" around the top edge and "COLLEGE OF DENTISTRY" around the bottom edge. In the center of the seal is a caduceus (a staff with two snakes entwined around it) and the text "EFFICIENT COMMUNICATING".

# LOCAL ANESTHESIA TRAINING FOR DENTAL HYGIENISTS

**Curriculum**  
**Approved June 27, 2012**

## Local Anesthesia for Dental Hygienists

**CEUs: 60 contact hours. Participation**  
**30 hr. didactic (15 hr. live and 15 hr. web-based)/**  
**30 hr. clinical (15 hr. live and 15 hr. observational)**

**Program Format: Must attend both live weekend sessions and finish all web-based and observational criteria to complete the program.**

Weekend one (Saturday/Sunday) 8 am – 5 pm

- Saturday 7.5 hours didactic
- Sunday 7.5 hours clinical

Weekend two (Saturday/Sunday) 8 am – 5 pm

- Saturday 7.5 hours didactic
- Sunday 7.5 hours clinical

**Course Fee: \$1,850\***  
**Breakfast/Lunch included**

**\*Required Textbook & DVD (not included in fee)** Handbook of Local Anesthesia, 6th Edition Dr. Stanley Malamed

### Course Dates:

#### Weekend I

September 29-30, 2012  
November 10-11, 2012  
January 5-6, 2013  
February 2-3, 2013  
April 6-7, 2013  
May 18-19, 2013  
July 13-14, 2013

#### Weekend II

October 13-14, 2012  
December 15-16, 2012  
January 26-27, 2013  
February 23-24, 2013  
April 27-28, 2013  
June 23-24, 2013  
August 10-11, 2013

### Location:

UF College of Dentistry  
1395 Center Dr.  
Gainesville, FL 32610

Register online at [www.dental.ufl.edu/ce](http://www.dental.ufl.edu/ce)

### For more information contact:

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University of Florida College of Dentistry Curriculum:

## Local Anesthesia Training for Dental Hygienists

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**Statute 466.017 (SB 1040)**

(5) A dental hygienist under the direct supervision of a dentist may administer local anesthesia, including intraoral block anesthesia, soft tissue infiltration anesthesia, or both, to a nonsedated patient who is 18 years of age or older, if the following criteria are met:

(a) The dental hygienist has successfully completed a course in the administration of local anesthesia which is offered by a dental or dental hygiene program accredited by the Commission on Dental Accreditation of the American Dental Association or approved by the board. The course must include a minimum of 30 hours of didactic instruction and 30 hours of clinical experience, and instruction in:

1. Theory of pain control
2. Selection-of-pain-control modalities.
3. Anatomy.
4. Neurophysiology.
5. Pharmacology of local anesthetics.
6. Pharmacology of vasoconstrictors.
7. Psychological aspects of pain control.
8. Systematic complications.
9. Techniques of maxillary anesthesia.
10. Techniques of mandibular anesthesia.
11. Infection control.
12. Medical emergencies involving local anesthesia

(b) The dental hygienist presents evidence of current certification in basic or advanced cardiac life support.

(c) The dental hygienist possesses a valid certificate issued under subsection (6).

(6) Any dental hygienist seeking a certificate to administer local anesthesia must apply to the department, remit an application fee, and submit proof of successful completion of a course in the administration of local anesthesia pursuant to subsection (5). The board shall certify, and the department shall issue a certificate to, any dental hygienist who fulfills the qualifications of subsection (5). The board shall establish a one-time application fee not to exceed \$35. The certificate is not subject to renewal but is part of the dental hygienist's permanent record and must be prominently displayed at the location where the dental hygienist is authorized to administer local anesthesia. The board shall adopt rules necessary to administer subsection (5) and this subsection.

**Faculty**

Dr. Samuel B Low	Course Director, Department of Periodontics
Dr. Ulrich Foerster	Pre-Doc Course Director, Department of Oral and Maxillofacial Surgery
Dr. Matthew Dennis	Emergency Medical Procedures, Department of Oral and Maxillofacial Surgery

**Course Description:**

This course acquaints the dental hygienist with the academic and practical aspects of administration of local anesthetics in dental patients. It provides the student with the required training and information to safely and effectively relieve pain and reduce anxiety in the dental patient. It requires that the student apply knowledge from pharmacology, biochemistry, physiology and anatomy. The student should also realize that competency, and ultimately proficiency, in the administration of local anesthesia requires repeated administration and periodic self-reeducation.

**Pre-Requisites:**

Purchase Malamed textbook & DVD (listed under Required Materials) Copy of current license

Copy of completed UF HIPAA and Confidentiality Statement  
Current CPR

**Course Goals:**

The goals of this class are to assist the dental hygienist to become:

- 1) Knowledgeable in the use and administration of local anesthetics
- 2) Knowledgeable in the pharmacology, neurophysiology, neurochemistry and anatomy related to the administration of local anesthetics
- 3) Knowledgeable and competent in the physical and psychological evaluation of the patient prior to receiving local anesthetic or dental treatment
- 4) Knowledgeable in the side effects, complications and the management of those problems associated with local anesthetics

**Course Objectives:**

At the conclusion of the course, the participant will be trained in:

- A. Scope of pain and anxiety control
  1. Discuss the differences between the types of sedation / anesthesia
  2. Discuss the pros and cons of each method of sedation / anesthesia
  3. Describe the risks and benefits of each method of sedation / anesthesia
  4. Summarize the requirements of state law regarding the administration of local anesthesia
  5. Discuss the legal ramifications of administration of local anesthesia
- B. Neurophysiology
  1. Discuss the desirable properties of local anesthetics
  2. Discuss the fundamentals of impulse generation and transmission
  3. Discuss the mode and site of action of local anesthetics
- C. Pharmacology of local anesthetics and vasoconstrictors
  1. Discuss the pharmacokinetics of local anesthetics, including uptake, distribution, metabolism, and excretion
  2. Discuss the systemic actions of local anesthetics on the following:
    - a. Central nervous system
    - b. Cardiovascular system
    - c. Respiratory system
    - d. Other miscellaneous actions
  3. Describe the indications for using a vasoconstrictor in a local anesthetic solution. Consider the following:
    - a. Mechanism of action
    - b. Metabolism
    - c. Maximum dosage
    - d. Toxic effects
    - e. Contraindications
  4. Discuss the following information for lidocaine, mepivacaine and bupivacaine:
    - a. Type of anesthetic, ester or amide
    - b. Brand name(s)
    - c. Onset and duration of action
    - d. Metabolism, including uptake, redistribution, inactivation, and excretion
    - e. Common concentrations used in dentistry

- f. Maximum dosage
  - 5. Name the two general categories of topical anesthetics. Discuss benzocaine, lidocaine, and tetracaine topical anesthetics
  - 6. Calculate the amount of anesthetic and vasoconstrictor contained in the various types of anesthetic solutions
- D. Armamentarium
- 1. Identify the components of the breech-loading aspirating syringes, needles, and carpules
  - 2. Identify the problems that can occur with the syringes, needles and carpules
  - 3. Discuss the component chemicals contained within the cartridge and their function
  - 4. Recognize when local anesthetic is no longer safe to administer
  - 5. Special consideration in patient with latex allergy
- E. Physical and psychological evaluation
- 1. Discuss the evaluation of the patient prior to administration of local anesthesia or sedation, including the following:
    - a. Medical history
    - b. Physical evaluation
    - c. Psychological evaluation
  - 2. Recognition of signs and symptoms of anxiety
  - 3. List the ASA classification
  - 4. Demonstrate how to monitor the central nervous system, respiratory system and cardiovascular system for adverse reactions
- F. Anatomic considerations, clinical application and supplemental injection techniques
- 1. Discuss the following types of administration of anesthetic:
    - a. Maxillary anesthesia
    - b. Mandibular anesthesia
    - c. Gow-Gates
    - d. Akinosi
    - e. PDL
    - f. Interosseous
    - g. Electronic
    - h. Controlled delivery devices
- G. Local and systemic complications
- 1. Discuss the causes, problems, prevention and management of the following local complications:
    - a. Needle breakage
    - b. Pain on injection
    - c. Persistent anesthesia: paresthesia
    - d. Trismus
    - e. Hematoma
    - f. Infection
    - g. Tissue sloughing
    - i. Lip chewing
    - j. Facial nerve paralysis
    - k. Intravascular injection
  - 2. Discuss the causes, problems, prevention and management of the following systemic complications:
    - a. Local anesthetic overdose
    - b. Epinephrine overdose
    - c. Allergy
    - d. Idiosyncratic reaction
    - e. Side effects

**Evaluation:**

Cognitive Assessment: Students will be evaluated by a final written examination

**Laboratory Preparation:**

**Review: Injection Videos in the document section, prior to your lab session.**

**Review: Chapter 5-15, Malamed (Local Anesthesia) (Armamentarium, Anatomy technique to supplement videos) Chapter 2,3,5,6 Malamed (Medical Emergencies) (Basic Emergency Information)**

Learn and perform the following injection techniques on manikins and/or live patients:

- a. ASA
- b. MSA
- c. PSA
- d. Greater palatine
- e. Infraorbital
- f. Inferior alveolar
- g. Lingual
- h. Long buccal

Clinical Assessment: Demonstrate the proper injection technique for the assigned anesthesia assessment

**Grade Weights:**

Cumulative Final: 75%

Lab activities: S=Satisfactory

Remediation for this course will consist of a written assignment and then an oral examination with the course director. Students not receiving a "satisfactory" in the didactic or clinical session must remediate by participating in a remediation clinical session.

**UF CDE curriculum:**

Formal Training:

**30 hr. Didactic** (15 hours lecture/workshop, 15 hours web-based instruction)

- 4 hrs. **Emergency Medical Procedures**
  - Online "Treatment of Medical Emergencies"
  - A. Monitoring Vital Signs
  - B. Emergency Equipment and Preparedness
  - C. Recognition of Common Medical Emergencies and Treatment
  - D. Chest Pain /Cardiac Arrest
  - E. Allergy and Anaphylaxis
  - F. Hypotension
  - G. Syncope
  - H. Basic Life Support
  - I. Seizure Management
- 2 hrs. **Scope of pain and anxiety control**
  - A. Discuss the differences between the types of sedation/anesthesia
  - B. Discuss the pros and cons of each method of sedation/anesthesia
  - C. Describe the risks and benefits of each method of sedation/anesthesia

- D. Summarize the requirements of state law regarding the administration of local anesthesia
- E. Discuss the legal ramifications of administration of local anesthesia
- 3 hrs. **Medical Assessment of Patient –**
  - A. Medical History
  - B. Review of Systems
  - C. Pulmonary Evaluation
  - D. Cardiovascular Evaluation
  - E. Performing and Interpretation of Vital Signs
  - F. ASA Classification
  - G. Case-based Learning Session
- 3 hrs. **Management of Pain and Anxiety –**
  - A. Physical and Psychological Evaluation
  - B. Non-pharmacologic reduction of pain and anxiety
  - C. Neurophysiology
  - D. Evaluation of Anesthetic Choice
  - E. Analgesic Agents – Topical Anesthetics
- 2 hrs. **Head and Neck Anatomy –**
  - A. Muscles of Mastication
  - B. Muscles of Facial Expression
  - C. Facial Spaces
  - D. Trigeminal Nerve and Associated Vasculature
- 2 hrs. **Pharmacology of Local Anesthesia –**
  - A. Mechanism of Action
  - B. Classification
  - C. Metabolism
  - D. Recommended and Maximum Doses
  - E. Drug Interactions and Side effects
- 2 hrs. **Pharmacology of Vasoconstrictors –**
  - A. Mechanism of Action
  - B. Use with Local Anesthetics
  - C. Specific Agents
  - D. Toxicity
  - E. Recommended and Maximum Dosages
  - F. Contraindications
- 2 hrs. **Armamentarium –infection control**
  - A. The Syringe
  - B. The Needle
  - C. The Cartridge
  - D. Preparation of Armamentarium
- 8 hrs. **Techniques of Local Anesthesia –**
  - A. Techniques of Maxillary Anesthesia
  - B. Techniques of Mandibular Anesthesia
    - 1. Basic Injection Techniques
    - 2. Anatomical Considerations
  - C. Manikin Practice Demonstration of:
    - 1. Infiltrations in Maxilla and Mandible
    - 2. Mandibular Nerve Block
    - 3. Mental Nerve Block
    - 4. Long Buccal Nerve Block
  - D. Manikin Practical
  - E. Local Anesthesia Considerations
  - F. Case-based Seminar



- 2 hrs.   **Complications and Legal Considerations –**  
A. Local Complications  
B. Systemic Complications  
C. Legal Considerations

Written Examination

**30 hr. Clinical Experience**

The clinical course hours will be as follows:

1. 15 hours in the University of Florida dental clinics providing local anesthesia consisting of documentation for all maxillary and mandibular techniques (will include a practical examination to evaluate competency.)
2. 15 hours observing either in an educational institution or with a respective employer. (All observable procedures will be documented including technique, patient observations, and management.)

Clinical Assessment

**Required Material:**

Required Textbook & DVD: (Students must purchase)\_

Malamed, Stanley, F., Handbook of Local Anesthesia, 6th edition. Mosby, June 2004. ISBN#0-323-03353-9

Suggested Sources:

Amazon

[http://www.amazon.com/Handbook-Local-Anesthesia-Book-Package/dp/032307412X/ref=sr\\_1\\_5?ie=UTF8&qid=1342717315&sr=8-5&keywords=stanley+malamed%27s+handbook+of+local+anesthesia](http://www.amazon.com/Handbook-Local-Anesthesia-Book-Package/dp/032307412X/ref=sr_1_5?ie=UTF8&qid=1342717315&sr=8-5&keywords=stanley+malamed%27s+handbook+of+local+anesthesia)

Elsevier/Mosby (Publisher)

<http://aiprx.elsevierhealth.com/product.jsp?isbn=9780323074124&navAction=&navCount=0>

Required Videos: (Online)

University of Florida didactic local anesthesia videos

Mandibular Anesthesia: Increasing the Success of Injection Techniques, Astra. (11 Videos; 23 minutes)

Maxillary Anesthesia: Increasing the Success of Injection Techniques, Astra. (9 videos; 24 minutes)

Course hours per required areas of study:

- |                |  |
|----------------|--|
| 2hrs D         | 1. Theory of pain control                          |
| 2hrs D         | 2. Selection-of-pain-control modalities            |
| 2hrs D         | 3. Anatomy   |
| 2hrs D         | 4. Neurophysiology                                 |
| 2hrs D         | 5. Pharmacology of local anesthetics               |
| 2hrs D         | 6. Pharmacology of vasoconstrictors                |
| 2hrs D         | 7. Psychological aspects of pain control           |
| 2hrs D         | 8. Systematic complications                        |
| 4hrs D/15hrs C | 9. Techniques of maxillary anesthesia              |
| 4hrs D/15hrs C | 10. Techniques of mandibular anesthesia            |
| 2hrs D         | 11. Infection control                              |
| 4hrs D         | 12. Medical emergencies involving local anesthesia |

Total: 30 hours Didactic and 30 hours Clinical