

## Course Information

Course Number: DDHS 4810 500  
Course Title: Local Anesthesia and Nitrous Oxide Conscious Sedation  
Section: 500  
Time: Fall 2024, Mondays 2:30-4:00pm  
Location: 423 CEB  
Credit Hours: 1 BS

## Instructor Details

Course co-director: Dr. Steven Bender DDS  
Office: 3000 Gaston Ave, 624E  
Phone: 214-828-8299  
E-Mail: [benderdds@tamu.edu](mailto:benderdds@tamu.edu)  
Office Hours: Email for appointment

Course co-director: Prof Brandy Cowen RDH, MS  
Office: 3302 Gaston Ave 139F  
Phone: 214-828-8325  
E-Mail: [bcowen@exchange.tamu.edu](mailto:bcowen@exchange.tamu.edu)  
Office Hours:

Faculty: Dr. Marianela Gonzalez DDS  
Office: 3000 Gaston Ave, 619  
Phone: 214-236-1419  
E-Mail: [gonzalezm@tamu.edu](mailto:gonzalezm@tamu.edu)  
Office Hours: Email for appointment

## Course Description

This course consists of didactic and laboratory components and is designed to prepare the student to administer/monitor local anesthesia and nitrous oxide inhalation sedation to patients for pain management during dental treatment. Lecture instruction includes the basic principles of local anesthetics and nitrous oxide/oxygen inhalation sedation, patient pre-evaluation, injection techniques, and recognition of adverse patient reactions. The laboratory component includes the administrations of local anesthesia and the monitoring of nitrous oxide/oxygen sedation.

## Course Prerequisites

Successful matriculation into the DH2 year

## Special Course Designation

DH Bachelor of Science

## Course Learning Outcomes

### **Course Objectives:**

At the completion of this course the student should be able to:

1. Discuss the Texas State Board of Dental Examiners laws and regulations pertaining to the administration of local anesthesia and nitrous oxide/oxygen inhalation sedation.
2. Identify the armamentarium used in local anesthesia procedures.
3. Discuss the basic terminology used in dentistry to describe injection techniques and responses to local anesthetic injections.
4. Discuss the fundamental anatomy, physiology and pharmacology involved in the skillful administration of local anesthetics.
5. Describe the indications and contraindications for use of local anesthetic and vasoconstrictors.
6. Describe the foundational information necessary to becoming competent in the evaluation of the psychological and physical status of the patient before, during and after the administration of local anesthesia including history taking and physical examination.
7. Discuss the pharmacology of agents used in local anesthetics and vasoconstrictors, including drug interactions and incompatibilities.
8. Calculate the recommended dosages of local anesthetic and vasoconstrictors for individual patients.
9. Develop an understanding for the need for adjustment of local anesthetic and vasoconstrictor doses for healthy and medically compromised or complex patients.
10. Appreciate the foundational information necessary to develop competency in the prevention, recognition and initial management procedures to the adverse effects or toxicity of local anesthetics or complications following local anesthetic administration and potential emergency procedures.
11. Describe, the fundamental techniques to develop competency required for the administration of both mandibular and maxillary local anesthetics.
12. Recognize and manage local complications associated with local anesthetic injections; Recognize local anesthetic failures and corrective measures.
13. Describe patient monitoring through observation, with particular attention to vital signs and reflexes related to consciousness during local anesthetic administration and nitrous oxide/oxygen inhalation sedation procedure.
14. Describe safety and infection control procedures regarding local infiltration anesthetic techniques and proper disposal of sharps.
15. Describe the required post-operative care and instructions to be provided to patients.
16. Articulate the foundational information necessary for the maintenance of proper records with accurate entries to reflect any medical, drug or complications associated with local anesthetic administration.

### **Related Institutional Competencies:**

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Dental Hygiene Student:

- 1.2 Comply with state and federal laws governing the practice of dentistry and dental hygiene.
- 2.1 Apply critical thinking skills and evidence-based decision making to the practice of dental hygiene
- 3.3 Contribute to the knowledge base of dental hygiene.
- 6.1 Determine medical conditions that require special precautions or consideration prior to or during dental hygiene treatment.
- 6.2 Perform an extraoral and intraoral examination of the patient including assessment of vital signs and radiographic examination and distinguish normal from abnormal findings.
- 6.3 Manage the patient at risk for a medical emergency and be prepared to handle the emergency should it occur during and appointment.
- 6.4 Recognize predisposing, etiologic risk factors, and life-style choices that may require intervention to prevent disease.
- 6.6 Determine the need for referral to the appropriate health professional.

**Textbook and/or Resource Materials**

Handbook of Local Anesthesia by Malamed, SF, 7<sup>th</sup> edition (Elsevier)  
 Handbook of Nitrous Oxide and Oxygen Sedation by Morris Clark and Ann Brunick, 5<sup>th</sup> edition (Elsevier)  
 Learning materials and recordings posted to Canvas

**Grading Policy**

**Grade Scale**

- A = 100-90%
- B = <90-80%
- C = <80-75%
- D= <75-70%
- F = <70-0%

Exam I	30%
Exam II	30%
Exam III (comprehensive final)	30%
Nitrous Lab	10%
Max Infiltration Clinical Competency (UR)	Pass/ Repeat (>75%)
Max Infiltration Clinical Competency (UL)	Pass/ Repeat (>75%)
Mand Infiltration Clinical Competency (LR)	Pass/ Repeat (>75%)
Mand Infiltration Clinical Competency (LL)	Pass/ Repeat (>75%)
	100%
Passing Grade:	75%

**Exams**

There will be 3 examinations (2 formative and 1 summative/ comprehensive) covering all course material, including any assigned reading materials. If you miss any examination, you must schedule a make-up examination with Dr. Bender or Prof. Cowen. The make-up examination style will be at the discretion of Dr. Bender or Prof. Cowen and may include a written essay or oral presentation. If a student fails any of

the examinations, they will be given the opportunity to retake the exam. The highest score that can be made on the retake is 75%. The final course grade will be a weighted compilation of the 3 examinations plus successful completion of the mandatory labs. Student performance is evaluated by objective examination with an average score of 75% required for satisfactory achievement.

### **Nitrous Lab**

#### **Hands-on Activities/ Formative Assessments**

Formative assessments (FA) will be conducted throughout the semester using hands on activities during class and lab. Interactive activities with manikins, skulls, and cadavers will focus on student's developing their clinical skills through instructor feedback as well as peer and self-assessment of their strengths and areas of improvements and to provide direction for improving future performance. The goal of the FAs is to monitor and provide formative feedback to help students improve their clinical skills and confidence by self-assessing and making appropriate adjustments prior to sitting for the Infiltration Clinical Competencies listed on the course outline.

#### **Infiltration Clinical Competency**

The Infiltration Clinical Competencies are taken on a manikin/typodont and consist of successfully performing infiltration injections on 3 teeth in each quadrant (UR, UL, LR, LL). Regardless of standing grade from exams and lab, each Infiltration Clinical Competency must be passed at 75% or greater to pass the course. Students not achieving a passing score will receive remedial instruction and must re-take and pass the evaluation before finals week to successfully pass the course.

#### **Laboratory/Clinic Policies and Procedures:**

Mandatory participation in local anesthetics lab.

### **Late Work Policy**

Due to the important nature of the contents of this course to patient safety and clinical practice, Remediation will be offered at the discretion of the course director. Laboratory attendance is mandatory.

#### **Remediation Policy:**

Students making less than the required grade of 75 for the course must remediate the course as described below. Once the Student Promotion Committee has approved remediation, the student may remediate the class content by the following procedure:

In-House Remediation Procedure in the following semester:

The following are the steps involved for remediation:

1. The student must inform the course director of his/her intent and discuss the duration and schedule for remediation.
2. The student must complete a Remediation Exercise to be discussed with the course director at the first official meeting.
3. Additional handouts may be provided to the student, which he/she needs to go through before he/she comes to discuss each topic.

4. Students are required to meet with the course director for a minimum of 3 (three) times during the semester of remediation.
3. There will be one remediation exam. Requirement to pass remediation Exam: The student must secure a score of 75% or higher to pass remediation. The failed exam will be recorded as a grade of 75 and the failed exam score will be changed to a C grade

Remediation may include any or all of the following elements:

1. Reading from textbooks or journals available in the BUMC Medical Library.
2. Periodic review sessions with the Course Director or a designee.
3. Oral quizzes or questioning, which may be graded.
4. Review of handouts from the previous semester.
5. Weekly quizzes, covering the course's material.
6. The remediation must be passed with a cumulative score of 75 or better.

### Course Schedule

This schedule is subject to change during the semester. Rooms TBD.

Date	Session Title/Topic	Instructor(s) L. Name
Week 1 Aug 12	Introduction to Local Anesthesia in Dental Hygiene Practice	Dr. Steven Bender Prof. Brandy Cowen
Week 2 Aug 19	Local Anesthesia Armamentarium With hands on exercises	Dr. Steven Bender Prof. Brandy Cowen
Week 3 Sept 2	<b>Labor Day Holiday</b>	Dr. Steven Bender Prof. Brandy Cowen
Week 4 Sept 9	The Physical and Psychological Evaluation	Dr. Steven Bender Prof. Brandy Cowen
Week 5 Sept 16	Techniques of Administration: Maxillary With hands on exercises with skulls	Dr. Steven Bender Prof. Brandy Cowen
Week 6 Sept 23	<b>Exam I ExamSoft</b>	Dr. Steven Bender Prof. Brandy Cowen
Week 7 Sept 30	Techniques of Administration, Mandibular With hands on exercises with skulls	Dr. Steven Bender Prof. Brandy Cowen
Week 8 Oct 7	Local Complications and Systemic Complications	Dr. Steven Bender Prof. Brandy Cowen
Week 9 Oct 14	Case Discussion Workshop	Dr. Steven Bender Prof. Brandy Cowen
Week 10 Oct 21	Recent Advances/Specialty Considerations/Documentation (or cadaver lab)	Dr. Steven Bender Prof. Brandy Cowen
Week 11 Oct 21	Nitrous1&2	Dr. Steven Bender Prof. Brandy Cowen
Week 12 Oct 28	<b>Exam II Examsoft</b>	Dr. Steven Bender Prof. Brandy Cowen
Week 13 Nov 4	Infiltration Practice on Manikin/Typodonts w/ Peer Partner	Dr. Steven Bender Prof. Brandy Cowen
Week 14 Nov 11	Max Infiltration Clinical Competencies (UR/ UL)	Dr. Steven Bender Prof. Brandy Cowen
Week 15 Nov 18	Nitrous Oxide labs	Dr. Steven Bender Prof. Brandy Cowen

Date	Session Title/Topic	Instructor(s) L. Name
		Dr. Marianela Gonzalez
Week 16 Nov 25	<b>Fall Recess</b>	
Week 17 Dec 2	Mand Infiltration Clinical Competencies (LR/ LL)	Dr. Steven Bender Prof. Brandy Cowen
Week 18 Dec 9	<b>Exam III/ Final Exam</b>	Dr. Steven Bender Prof. Brandy Cowen

### Optional Course Information Items

#### Technology Support

Students are responsible for maintaining their devices and ensuring that they are in proper working order throughout the semester. This includes maintaining access to the college wireless network, access to all accounts (both TAMU and TAMU Health) and keeping passwords up to date. Students are expected to keep their devices up to date in regard to patches and OS updates.

#### Division of IT

If the student experiences issues with an electronic device, wifi access, axiUm, Zoom, or user accounts, their first point of contact should be the Division of IT Central Help Desk or the local Division of IT at COD. The Central Helpdesk provides 24-hour support.

Division of IT Central Help Desk Website: <a href="https://it.tamu.edu/help/">https://it.tamu.edu/help/</a> Phone: 1-979-845-8300 Email: <a href="mailto:helpdesk@tamu.edu">helpdesk@tamu.edu</a>	COD Local Division of IT Office Room: 519 Phone: 214-828-8248
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#### COD Instructional Design Team

For electronic exam support or problems concerning other academic technology, such as the LMS (Canvas), ExamSoft, or Examplify, students should contact the Instructional Design team.

Room: 516 through Academic Affairs

Carmina Castro                      [ccastro@tamu.edu](mailto:ccastro@tamu.edu)                      (214) 828-8316

Jeff Lowry                              [lowryj1@tamu.edu](mailto:lowryj1@tamu.edu)                      (214) 828-8243

Canvas support 24-hours                      (877) 354-4821

#### Lecture Recordings and Mediasite Support

Lecture recordings are posted to the Mediasite course catalog typically no more than 24 hours after they have been received. Unless otherwise specified, all course recordings are available via the Mediasite channel link within the Canvas course.

For missing recordings, contact your instructor and the Instructional Design Team.

For problems with recording playback, Mediasite access, or performance, contact IT's Health Technology Care Team (979.436.0250).

## University Policies

### Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

**For any absences (excused or unexcused), it will be the student's responsibility to contact the Office of Student Affairs (OSA) by sending an email to [Sod-attendance@tamu.edu](mailto:Sod-attendance@tamu.edu) prior to the start of class session. The OSA will decide if your absence is excused or unexcused. Make sure to provide your name, class level, the date(s) of absence and reason for your absence, the names of the instructors that need to be notified. If documentation is requested, it must be from a medical provider on letterhead with the provider's signature and be submitted within 3 business days of returning to school. Please refer to <https://student-rules.tamu.edu/rule07/>**

### Excused Absences

**Illnesses or emergencies:** It is understood that absences due to severe or contagious illness, injuries or emergencies may occur. An absence due to illness may require a medical confirmation note from a student's medical provider. For injuries or illnesses that require a student to be absent from class for three or more business days, a note from his or her medical provider is mandatory. If a student has frequent sick days, the program director may require a medical provider's note for each absence. **Note:** An absence for a non-acute medical service does not constitute an excused absence.

**Religious holy day:** A student whose absence is excused under or the observance of religious holy day will be allowed to take an examination or complete an assignment from which the student is excused within 3 days after the absence. **If the student fails to schedule and complete the exam or assignment within three days, a grade of zero will be given.**

### Unexcused Absences

Non-emergent appointments (illnesses not considered severe or contagious) scheduled during the class time will be considered an unexcused absence. **No make-up test will be given if an absence is unexcused on a test day.** In addition, examinations **will not** be administered in advance for a planned/anticipated unexcused absence.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

### Make-up Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reasons deemed appropriate by the instructor.

The designation of excused or unexcused absence will be determined on an individual basis by the Office of Student Affairs. For any absences (excused or unexcused), it will be the student's responsibility to review the lecture recordings for the class(es) missed. Additionally, the student must complete any

make-up assignment(s) within **10 calendar days (including weekends) after returning to school**. Failure to complete the make-up assignment(s) within this time frame will result in **TWO points being deducted from student's final grade**.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor” ([Student Rule 7, Section 7.4.1](#)).

“The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” ([Student Rule 7, Section 7.4.2](#)).

### Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20](#)).

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You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu](http://aggiehonor.tamu.edu). You can also contact Graduate Studies at 214-828-8182, Student Affairs at 214-828-8210, or your Program Director, for guidance.

### Americans with Disabilities Act (ADA) Policy

#### Texas A&M School of Dentistry

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Office for Academic Affairs in the Administration Building Room 514 or at (214)-828-8978 or [ajwilson@tamu.edu](mailto:ajwilson@tamu.edu). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

### Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.



With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

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Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s [Title IX webpage](#). School of Dentistry students can contact Graduate Studies at 214-828-8182, Student Affairs at 214-828-8210, Security at 214-828-8335, their Program Director, or their Department Head to report an incident.

## Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student’s academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

### **Texas A&M School of Dentistry**

Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org). You can also contact Graduate Studies at 214-828-8182 or Student Affairs at 214-828-8210 for a referral to a local counselor. These counseling sessions are private and confidential, as are any referral requests.

## Campus-Specific Policies

### Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. Currently enrolled students wishing to withhold any or all directory information items may

do so by going to [howdy.tamu.edu](http://howdy.tamu.edu) and clicking on the "Directory Hold Information" link in the Student Records channel on the MyRecord tab. The complete [FERPA Notice to Students](#) and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees honors and awards received, participation in officially recognized activities and sports, medical residence location and medical residence specialization.