

Old Dominion University

School of Dental Hygiene

Course Number and Title: DNTH 412; Local Anesthesia for Dental Hygienists

Curriculum Level: Undergraduate Senior Level

Course Credit Hours: Three (3) hours

Class Location: ODU main campus, College of Health Sciences Building, Room 220

Class Day and Time: Wednesdays, 10:00am to 11:00am (EST)

Semester, Year: Fall 2026

Course Description and Purpose: A foundational study of the principles and clinical science of dental local anesthesia, including neurophysiology, pharmacology, maxillofacial anatomy, injection concepts, and the prevention and management of anesthesia-related complications. Emphasis is placed on safe practice, patient comfort, and evidence-based decision-making in the delivery of local anesthetic care.

Prerequisites: DNTH 305, DNTH 306, DNTH 307, and DNTH 309

Instructor: Assistant Professor Kyla Rigby, RDH, MS

Office Location: ODU main campus, Health Sciences Building, Room 3040

Office Hours: Tuesdays from 8:00am to 11:00am (EST)

Office Phone: (757) 202-1851

Email Address: krigb001@odu.edu

Instructor Email Policy: Please email me directly at krigb001@odu.edu with questions or concerns. Messages will be checked daily on weekdays. Please be patient with responses during holidays and weekends.

Methods of Delivery: This is an on campus In-person course that will utilize lectures, guest speakers, class participation, audio-visual aids, individual and collaborative group work, written assignments, reading assignments, videos, Internet activities, and handouts. The Canvas Learning Management System is where course content will be housed.

Required Textbook: The following required textbook is free and available through ODU's online library:

Calatayud, J. & Saraghi, M. (2024). Local anesthesia in dentistry: A locoregional approach. John Wiley & Sons: Hoboken. ISBN 9781394180189

Supplemental Readings: Select articles and internet readings will be provided within Canvas course modules.

Recommended Text:

1. Malamed, S.F. (2020). Handbook of local anesthesia (7th ed.). Mosby: Maryland Heights. ISBN 9780323582070

Methods of Evaluation: Throughout the semester, students will be assessed for achievement of course goals and objectives by a variety of methods including group and individual projects and assignments, homework, oral presentation, written work, tests, and exams. Some of these will be graded and some will not be graded. Regardless, completion of all is expected. A list of graded requirements is below:

List of Graded Assessments:

	The following is a list of graded assessments. Due dates can be found in the schedule and will be discussed in class.
1.	Four (4) Homework Assignments- consists of comparison charts, worksheets, labeling activities, short-answers, and case studies. These will be individual activities.
2.	Three (3) Quizzes- each will be multiple-choice
3.	Case Project and Presentation- analyze a realistic local anesthesia case by focusing on the foundational domains learned from weeks 1-6. Using the assigned case details, explain the key scientific concepts relevant to chosen domains, discuss how those concepts influence patient assessment and safety, and identify factors that may affect anesthetic success or risk. This will be a collaborative group activity that is orally presented.
4.	Midterm- multiple-choice on content from weeks 1-7
5.	Final Exam- comprehensive

Artificial Intelligence Policy: The use of Artificial Intelligence (AI) tools for any assignments, quizzes, tests, or coursework in this class is strictly prohibited. All submitted work must be your own, and any use of AI-generated content will be considered an academic integrity violation.

Testing Protocol: Quizzes/tests/exams may cover lecture materials, assigned readings, PowerPoints, and handouts. The final exam will be comprehensive. All will be administered using Canvas Respondus LockDown Browser.

- Hardware Requirements: Fully charged laptop, a webcam, a microphone. **NOTE:** tablets and Chromebooks are not compatible with some Canvas testing options. A reliable internet connection is required.

- Software Requirements: Chrome, Firefox, Edge, or Safari.

How to take tests:

- 1) Place your smartphone in airplane mode.
- 2) Enable your laptop camera and position it so you are clearly visible.
- 3) During our regularly scheduled class period, use your laptop computer to log into Canvas and open the “Quizzes, Tests, & Exams” tab.
- 4) Within that tab, open the appropriate assessment once I verbally announce that it is time to begin.

Tests are not released. For questions regarding tests, please email to schedule a Zoom appointment. Tests may only be reviewed until the next test date. Grades will not be changed for student errors on tests.

Grading Criteria:

Assignment Weights:

Assignment	Undergraduate DNTH 412
Homework #1	5%
Homework #2	5%
Homework #3	5%
Homework #4	5%
Quiz #1	5%
Quiz #2	5%
Quiz #3	5%
Case Project and Presentation (group activity)	15%
Midterm	25%
Final Exam	25%
Total Grade	100%

Grading Scale:

93-100	A
85-92	B
77-84	C
70-76	D
69 and below	F

Attendance Policy: Attendance is required for this course due to the cumulative and safety-critical nature of local anesthesia content. Students are expected to arrive on time, prepared, and ready to participate in all scheduled class sessions. If a student experiences an emergency or unexpected circumstance, they should contact me as soon as possible by email. Communication prior to class is preferred when feasible. Official documentation may be required for absences related to illness, medical appointments, or emergencies. Documentation does not automatically excuse an absence but helps determine whether it qualifies as excused.

Excused absences may include:

- Illness with documentation
- Medical or dental emergencies
- Family emergencies
- Approved university-sponsored activities
- Weather-related travel issues (when officially announced)

Unexcused absences include:

- Oversleeping
- Work conflicts
- Travel plans
- Non-emergency appointments
- Failure to notify the instructor

Repeated or unexcused absences may affect a student's grade by limiting participation, reducing opportunities for in-class learning, and impacting performance on quizzes, tests, and assignments. Missed in-class activities or assessments may not be made up without prior communication and instructor approval.

Missed Quizzes/Tests/Exams Policy: Students are expected to take all tests at the scheduled class time. A missed test will only be excused for documented, legitimate reasons mentioned above. Students must email the instructor as soon as possible and provide appropriate documentation. Unexcused absences will result in a zero for that assessment. If an absence is excused, a make-up test will be offered but may differ in format or content. The make-up test must be completed within one week unless otherwise arranged. No points are deducted for an excused absence.

Submitting Assignments Policy: All assignments must be submitted by the posted due date and time listed in Canvas. Assignments are submitted electronically through the Assignments tab in Canvas. All electronic submissions must be uploaded in the required

format (PDF or Word document). Students are responsible for ensuring that files open correctly and are not corrupted. If technical problems occur during submission, students should immediately take a screenshot of the issue, email the instructor, and contact the ITS Customer Service Help Desk at 757-683-3192. Late work due to technical issues will only be considered if the student provides documentation of the problem and contacts the instructor before the deadline. All submitted work must include the student's last name and assignment title.

Late Assignments Policy: All assignments are expected to be submitted by the posted due date and time in Canvas. Late work will incur a deduction of 10% per day (including Saturdays and Sundays), up to three days past the deadline. After three days, the assignment will no longer be accepted and will receive a zero. Assignments that are not graded must still be completed on time, and failure to submit them may affect readiness for quizzes and tests. Incomplete or partial assignments may be submitted, but they will be graded based on the work provided and will still be subject to late penalties if submitted after the deadline. Extensions may be granted only in cases of documented emergencies and must be requested before the due date whenever possible.

Student Expectations: Students enrolled in this course are expected to demonstrate professionalism, ethical behavior, responsibility, and effective communication at all times. The knowledge and habits you develop now directly impact the safety and well-being of the patients you will one day treat. While I am committed to supporting student learning, each student is ultimately responsible for their own success.

All students are expected to:

- Arrive prepared by completing assigned readings, homework, and pre-class learning activities.
- Demonstrate professionalism in communication, conduct, and interactions with peers and faculty.
- Take responsibility for their learning by asking questions, seeking help early, and using available resources.
- Meet deadlines consistently and manage their time effectively to stay on track with course requirements.
- Uphold ethical standards by submitting original work, following safety protocols, and practicing honesty in all academic activities.
- Check their ODU student email regularly.

Computer and Cell Phone Use: Students are expected to use personal electronic devices responsibly and in a manner that supports learning. Laptops and tablets may be used for

note-taking or accessing course materials; however, all devices must be silenced, notifications disabled, and screens limited to course-related content during lecture and class activities. The School of Dental Hygiene requires that cell phones must remain on silent and stored away unless otherwise permitted for a specific activity. Texting, ringing, or browsing unrelated websites is distracting and unprofessional. Failure to follow this policy can result in points deducted from the student's final grade.

General Computer and Technical Requirements: Students are required to have regular access to a computer with a reliable internet connection, an activated ODU email account, and a functioning MIDAS ID in order to participate fully in this course. Because course materials, assignments, and announcements are delivered through Canvas, students must be able to log in and check both Canvas and ODU email frequently. For proctored quizzes, tests, and exams, students will need the Respondus LockDown Browser installed on their laptop. Students must download the Zoom app for any one-on-one appointments. Students are responsible for ensuring their devices are updated, functional, and capable of supporting all required software throughout the semester.

Important Additional University and School of Dental Hygiene Statements:

STATEMENT OF STUDENT RESPONSIBILITIES AND ACCOUNTABILITIES: The school of dental hygiene supports Old Dominion University in its commitment to the holistic development of its students, fostering an environment that is safe, secure, and inclusive. This commitment encourages student accountability, academic integrity, student engagement, and success. The University expects students and student organizations/groups to uphold and follow the behavioral standards of the Code of Student Conduct ("the Code"). These behavioral expectations are embodied within core values, including personal and academic integrity, fairness, respect, community, and responsibility. The student accountability process exists to protect University interests and educate and respond to students and student organizations/groups whose behavior does not align with those expectations.

Attendance: Due to the unique responsibilities and accountabilities associated with becoming a competent professional healthcare provider, the progressive nature of the curriculum, the legal issues associated with providing patient/client care, the provision of quality health services and future employability, attendance and class participation are required. Should an absence be necessary, the student must email the course director immediately at krigb001@odu.edu.

- A note on official stationery from a physician or other appropriate healthcare provider that saw you or treated you on the day(s) you were absent must be

submitted to your course director(s), the department Chair, and Director of Clinical Affairs the day you return verifying the need to be excused from class, lab and/or clinic, and date(s) for the required absence. Notes will not be accepted after final grades have been submitted.

- In the case of medical-related illness when the student feels well enough to attend virtually, a concurrent Zoom option may be considered by the course director with advance notice of 24 hours. In the event the student is unable to give advance notice for a medical-related illness, Zoom may not be available. Zoom is not available for other circumstances without advance notice and approval from the Course Director.
- Students who are absent and fail to provide an acceptable excuse (see criteria above) on the day of their return, may be asked to meet with the course director, meet with the SODH Chair and Entry-level Program Director, and/or may be referred to ODU Cares for a follow up.
- Each unexcused absence will result in a grade penalty of one percentage point reduction from the final grade in the course(s) missed.
- Make up for clinic and lab time missed, and academic exercises (assignments, quizzes, tests, exams, practicals, etc.) will not be given for unexcused absences.
- Late arrivals to class are considered unexcused absences.
- Students who miss a regularly scheduled test are to follow the steps below:
 1. For an unexcused absence, a grade of zero (0) will be recorded for the quizzes, tests, exams, practicals, and for attendance.
 2. For an excused absence, make-up quizzes, tests, exams, and practicals must be taken within two days of returning from a documented excused absence. Failure to do so will result in a zero (0) for that quiz, test, exam or practical. Make-up test format will be decided by the course director. Possible formats will include but are not limited to:
 - a) oral exam
 - b) essay
 - c) short answer
 - d) listing
 - e) demonstration/performance
 - f) combination of these

Meeting Established Deadlines: All course related academic exercises are to be submitted as directed by the course director on the established due dates. Academic exercises submitted after the established deadlines will be penalized by the grade. Students are encouraged to keep a duplicate copy of all submitted academic exercises.

Honor Code: By attending Old Dominion University, you have signed a pledge accepting the responsibility to abide by the following Honor Code: "We the students of Old Dominion University, aspire to be honest and forthright in our academic endeavors. Therefore, we will practice honesty and integrity and be guided by the tenets of the Monarch Creed. We will meet the challenge to be beyond reproach in our actions and our words. We will conduct ourselves in a manner that commands the dignity and respect that we also give to others." This is an institutional policy approved by the Board of Visitors. The University Honor Code applies to all academic exercises by students.

Academic Misbehavior:

A. Academic Sabotage: An intentional effort to corrupt or negatively impact another student's academic work.

B. Cheating: Copying, collaborating, or completing an academic exercise with or for other students or parties without permission from the class-assigned faculty member; paying someone to complete assignments; using any unauthorized materials to assist on assignments; misusing study aids such as Chegg, Quizlet, Course Hero, etc., to complete or pass class assignments; using test banks or copying answers from another source or student. This also includes unauthorized use of artificial intelligence sites including, but not limited to, ChatGPT, Dall-E, Alpha Code, Tensor Flow, Scribe, etc., and any act or behavior that gives the student an unfair advantage.

C. Fabrication: Inventing, altering, falsifying, creating data, citation, or information in an academic exercise or for any improper purpose. Knowingly presenting false or falsified official documentation such as transcripts, doctor's notes, supervisor evaluations, application materials, etc.

D. Facilitation: Helping another person participate in any act of academic misbehavior (including, but not limited to, sharing course materials without permission).

E. Misrepresentation: Misleading an instructor as to the condition under which the work was prepared, including, but not limited to, undisclosed Artificial Intelligence (AI) use, substituting for another student, or permitting another person to substitute for oneself on any academic work.

F. Plagiarism: According to the ODU Code of Student Conduct, plagiarism is “Intentional or unintentional use of someone else's scholarly or academic work, language, ideas, or other material as your own without proper citation in an academic exercise (whether reproduced or presented verbatim or in paraphrased or summary form); recycling a previous assignment as a new assignment without appropriate citation or notification and approval from faculty members”. Therefore, all academic exercises submitted are expected to be the result of each student’s own thought, research, and self-expression. A student will have committed plagiarism if he or she reproduces someone else’s work without acknowledging its source; or if a source is cited which the student has not cited or used. Examples of plagiarism include but are not limited to: submitting a research paper obtained from a commercial research service, the Internet, or from another student as if it were original work; making simple changes to borrowed materials while leaving the organization, content, or phraseology intact; or copying material from a source, supplying proper documentation, but leaving out quotation marks. Plagiarism also occurs in a group project if one or more of the members of the group does none of the group’s work and participates in none of the group’s activities but attempts to take credit for the work of the group.

All allegations of academic misbehavior in the SODH are investigated and follow the Academic Integrity Resolution Options form found here:

<https://www.odu.edu/sites/default/files/documents/acad-integrity-report-form-19-20.pdf>. Findings/outcomes are protected by Federal Privacy law and are unable to be disclosed. For more information, visit the Office of Student Accountability & Academic Integrity (OSAAI) webpage <https://www.odu.edu/student-conduct-academic-integrity>

Test Protocol: Tests may be comprehensive, beginning with the first lecture session. During any test, exam, or quiz administered in this course, the student must adhere to the following instructions:

- The student must abide by the ODU Honor Code and Student Handbook.
- Students are not permitted to access their personal belongings during testing. The testing area must be completely cleared except for approved items.
- NO hoods or hats are permitted.
- NO notes, books, lecture materials, powerpoints, assignments, etc. may be referenced or used during the exam/quiz.

- NO other electronics are allowed to be turned on or used during the exam, except for use of a laptop to take test.
- Students are not allowed to talk during testing or following testing until all students have completed and submitted the quiz/test/exam.
- Students are not permitted to ask the course director or GTA any questions regarding the content during the quiz/test/exam.
- Getting up during testing is not allowed. The student must finish the exam in one sitting.
- Students are required to use a privacy screen on laptops for entire duration of test, quiz, or exam.
- This course will implement testing using Canvas Respondus Lockdown browser. In the event testing becomes virtual, recorded zoom proctoring will be used to ensure testing integrity. Therefore, students will be required to have a microphone, camera, and the Respondus LockDown browser in order to complete quizzes, tests, and exams. This will require you to have Zoom on another device (i.e smart phone) with camera and microphone turned on and the Canvas webpage and examination on a computer/laptop.

Artificial Intelligence (AI) Software Use: Course directors within the School of Dental Hygiene reserve the right to create course policies for artificial intelligence. Please refer to specified syllabi statements within each of your courses and meet with your course director if you need clarification. Refer also to ODU's Code of Student Conduct for university policies related to student utilization of artificial intelligence.

Code of Student Conduct: All students are expected to abide by the Code of Student Conduct as found in the Old Dominion University Student Handbook and University Catalog. The School of Dental Hygiene provides persons treated in the Dental Hygiene Care Facility with safe, ethical, and evidence-based oral healthcare. Endangering health and welfare by use of unsafe and unethical practices and/or not following standard dental hygiene treatment protocols is grounds for the removal of students from the dental hygiene program. According to the Code of Student Conduct, academic exercises can include but are not limited to items submitted for drafts, extra credit, grading, continuance, graduation, honors, awards, scholarships, or recognition at the university as well as materials submitted to other institutions, associations, or organizations for evaluation (e.g., awards, scholarships, or publication). Academic exercises include all forms of work: oral, written, electronic, or otherwise submitted by students and may be used anonymously for necessary review without notification.

Student Class Expectations on Conduct: Appropriate conduct by students is an absolute requirement in the college and includes distance education courses. The university operates with a policy of zero tolerance for any disruptive behavior. The term 'disruptive behavior' means any behavior that substantially interferes with the conduct of a class. Disruptive behavior may include but is not limited to:

- Persistent late arrivals or leaving early in a manner that disrupts the regular flow of the class.
- Talking while the course director is talking.
- Speaking in class without first obtaining recognition and permission to speak.
- Use of any electronic equipment such as cell phones, computers, digital tablets, digital audio players, earphones, etc. in a manner that disrupts the class.
- A student who becomes belligerent or verbally abusive when confronted as a result of his/her inappropriate behavior.

Students do not have the right to engage in behavior that is disruptive in the classroom. The faculty has the authority to maintain appropriate classroom behavior in all courses offered by Old Dominion University, whether in traditional or distance/virtual modes. Faculty have the right to immediately confront any student causing disruptive behavior, and request cessation of the behavior. A follow-up conversation with the student(s) is recommended to reinforce the faculty member's expectations for appropriate conduct in the classroom. In situations in which students are cooperative with the faculty member's request to cease disruptive behavior, the faculty member need only report the incident to the department chair. Should any student choose not to respond to a request to cease disruptive behavior, the faculty member should ask the student to leave the classroom to prevent further disruption to the class. A disruptive student should be reported to the Office of Student Accountability and Academic Integrity for disciplinary action under the Student Disciplinary Policies and Procedures.

Students engaged in classroom disruption will normally be charged with:

1. Failure to comply with the directions of university officials, their authorized agents, and local police agencies acting in the performance of their duties; and/or
2. Obstruction or disruption of university activities.

Accommodations: Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility (OEA) by providing Accommodation Letters to their course directors early in the semester to start receiving accommodations.

Accommodations will not be made until the Accommodation Letters are provided to course directors each semester. You may visit the OEA's website at: <https://www.odu.edu/accessibility> to schedule an appointment or register for services.

ODU's Office of Counseling Services: ODU's Office of Counseling Services (OCS) is a university agency with competent, diverse, and multidisciplinary professional staff. We are committed to supporting the emotional well-being, social development, and academic progress of all students at Old Dominion University. College life can be a wonderful time of self-discovery, but for many, it is also a time when the awareness of mental health conditions increases. OCS services are available to assist with addressing mental health concerns that a student may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via our website at: <http://www.odu.edu/counselingservices>. All services are free to ODU students.

School of Dental Hygiene Policy on Professionalism in the Use of Social Media:

The Internet has created the ability for dental hygiene students and oral health professionals (dental hygienists and dentists) to communicate and share information quickly to reach millions of people easily. Participating in social networking and other similar Internet opportunities can support students' and dental hygienists' personal expression, enable individuals to have a professional presence online, foster collegiality and camaraderie within the profession, provide opportunity to disseminate public health and other health messages. Social networks, blogs, and other forms of communication online also create new challenges to the patient-oral health provider relationship. Oral health professionals and students must weigh a number of considerations when maintaining a presence online.

(a) Standards of patient and colleague privacy and confidentiality must be maintained in all environments, including online, and oral health professionals and students must refrain from posting identifiable personal information online.

(b) When using the Internet for social networking, oral health professionals and students must use privacy settings to safeguard personal information and content to the extent possible, but realize that privacy settings are not absolute and that once on the Internet, content is likely there permanently. Thus, oral health professionals and students should routinely monitor their own Internet presence to ensure that the personal and professional information on their own sites and, to the extent possible, content posted about them by others, is accurate and appropriate.

(c) If interacting with patients on the Internet, oral health professionals and students must maintain appropriate boundaries of the patient-oral health provider

relationship in accordance with professional ethical guidelines just as they would in any other context.

(d) To maintain appropriate professional boundaries oral health professionals and students should consider separating personal and professional content online.

(e) When oral health professionals or students see content posted by colleagues that appear unprofessional or a violation of the Code of Ethics of the American Dental Hygienists' Association, they have a responsibility to bring that content to the attention of the individual, so that he or she can remove it and/or take other appropriate actions. If the behavior significantly violates professional norms and the individual does not take appropriate action to resolve the situation, the dental hygienist and or students should report the matter to appropriate authorities, e.g., the State Board of Dentistry, the University Honor Council.

(f) Oral health professionals and students must recognize that actions online and content posted may negatively affect their reputations among patients, colleagues, employers and potential employers and may have consequences for their careers now and in the future, and can undermine public trust in the dental hygiene profession.

Adapted heavily from the AMA Policy: Professionalism in the Use of Social Media Approved- May 17, 2012.

Course Disclaimer Statement: Every attempt is made to provide a syllabus that is complete and that provides an accurate overview of the course. However, circumstances and events may make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the students.

General Course Objectives:

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

1. Explain the physiological mechanisms of nerve conduction and how local anesthetics interrupt impulse transmission.
2. Analyze how chemical structure and physical-chemical properties influence anesthetic onset, duration, potency, and clinical performance.
3. Evaluate the role of vasoconstrictors in enhancing anesthetic safety and effectiveness, including their indications, limitations, and systemic considerations.
4. Describe the anatomical structures and nerve pathways of the maxillary arch relevant to local anesthesia.
5. Differentiate key anatomical features of the mandibular arch and their implications for anesthetic success and variability.
6. Identify the components and functions of the local anesthesia armamentarium essential for safe and effective clinical practice.
7. Explain the principles, indications, and limitations of topical anesthetic agents in reducing patient discomfort.
8. Explain the sequential phases of the basic injection technique and the factors that influence patient comfort and operator confidence.
9. Select appropriate maxillary pulpal anesthesia techniques based on anatomical and clinical principles.
10. Analyze the indications, limitations, and patient considerations associated with palatal anesthesia techniques.
11. Evaluate the advantages, challenges, and clinical applications of primary mandibular pulpal anesthesia techniques.
12. Analyze the role and clinical indications of supplemental mandibular anesthesia techniques.
13. Determine when supplementary anesthetic techniques are appropriate, including their risks, benefits, and localized effects.
14. Propose evidence-based strategies to overcome causes of anesthetic failure.
15. Identify anatomical and procedural contraindications that limit the safe use of specific anesthetic techniques.
16. Explain how medical conditions, drug interactions, and systemic factors influence the safe selection of local anesthetic agents.
17. Evaluate patient-specific risks associated with vasoconstrictor use and the circumstances in which alternative approaches are warranted.
18. Analyze the etiology, prevention, and management of local complications associated with dental local anesthesia.

19. Demonstrate appreciation for the importance of preparedness, calm response, and patient-centered communication when managing systemic complications.

Specific Objectives:

At the completion of each instructional unit, the student should be able to:

1. Chapter 4; The Peripheral Nerve and Local Anesthesia:
 - a. Identify the major structural components of peripheral nerves.
 - b. Explain the role of membrane proteins.
 - c. Apply principles of nerve depolarization and repolarization to illustrate how local anesthetics disrupt sodium channel function and prevent impulse propagation.
 - d. Analyze how factors influence the onset, depth, and duration of nerve block.
 - e. Display an interest in foundational neurophysiology and anesthetic mechanisms that support safe anesthesia practice.
2. Chapter 5; Pharmacology of Local Anesthetics:
 - a. Identify the basic chemical components of local anesthetic molecules.
 - b. Explain how physical–chemical properties of local anesthetics affect their onset, potency, and duration.
 - c. Apply pharmacologic principles to the selection of appropriate anesthetic concentrations and maximum recommended doses for adults and children.
 - d. Formulate safe anesthetic plans by weighing pharmacological considerations.
 - e. Indicate a commitment to safe and evidence-based anesthetic use by valuing accurate dose calculation, patient assessment, and pharmacologic reasoning as essential components of professional dental hygiene practice.
3. Chapter 6; Vasoconstrictors:
 - a. List the major vasoconstrictors used in dentistry.
 - b. Explain the advantages and disadvantages of adding vasoconstrictors to local anesthetic solutions.
 - c. Select appropriate formulations for vasoconstrictor dilutions and concentrations.
 - d. Analyze how systemic effects of catecholamines influence clinical decision-making and patient safety.

- e. Demonstrate a commitment to safe vasoconstrictor use by valuing careful patient assessment, medical history review, and evidence-based selection of anesthetic solutions.
4. Chapter 2; Applied Anatomy I: Maxillary Arch:
- a. Identify the major branches of the trigeminal nerve relevant to maxillary anesthesia.
 - b. Describe the course of the maxillary nerve and its key branches.
 - c. Apply knowledge of maxillary osseous and soft-tissue landmarks to the identification of clinically significant structures involved in maxillary local anesthesia.
 - d. Analyze how variations in maxillary anatomy and nerve pathways may influence anesthetic success, failure, or technique modification.
 - e. Demonstrate appreciation for the role of precise anatomical understanding in promoting safe, effective, and patient-centered maxillary anesthesia.
5. Chapter 3; Applied Anatomy II: Mandibular Arch:
- a. Identify the major branches of the mandibular nerve relevant to dental local anesthesia.
 - b. Describe the anatomical features of the body and ramus of the mandible and their relevance to anesthetic techniques.
 - c. Apply anatomical knowledge in the identification of clinically significant landmarks used for mandibular anesthesia.
 - d. Justify how the boundaries and contents of the pterygomandibular space influence anesthetic success, potential complications, and technique modification.
 - e. Demonstrate appreciation for the role of precise mandibular anatomical knowledge in ensuring safe, effective, and patient-centered delivery of mandibular anesthesia.
6. Chapter 11; Instrument Set and Equipment:
Chapter 12; Topical Anesthesia:
- a. Identify the components of the local anesthesia armamentarium.
 - b. Explain the function and safety considerations related to the assembly, handling, and disposal of local anesthesia equipment.
 - c. Apply principles of topical anesthesia to the selection of appropriate agents, concentrations, and application sites based on patient needs and procedural requirements.
 - d. Evaluate how factors influence the onset and effectiveness of topical anesthetics.

- e. Adhere to established protocols for equipment handling and topical anesthesia to support patient comfort and safe clinical practice.
7. Chapter 13; Basic Injection Technique:
- a. List the phases of the basic intraoral injection technique in their recommended sequence.
 - b. Explain the role of proper retraction, patient communication, and operator positioning in reducing anxiety and improving injection comfort.
 - c. Apply knowledge of tissue anatomy and injection mechanics to the evaluation of potential causes of pain during injection and strategies to minimize them.
 - d. Analyze commonly used terminology for anesthetic techniques and how these terms relate to variations in approach, target areas, and expected outcomes.
 - e. Demonstrate appreciation for the importance of patient comfort, anxiety reduction, and clear communication as essential components of safe and compassionate injection practice.
8. Chapter 14; Maxillary Anesthesia I: Pulpal Anesthesia:
Chapter 15; Maxillary Anesthesia II: Complementary Anesthesia of the Palate:
- a. List the primary maxillary pulpal and palatal injection techniques used in dentistry, including their general target areas.
 - b. Explain the anatomical structures and nerve pathways relevant to maxillary anesthesia.
 - c. Apply knowledge of maxillary anatomy and clinical indications to the selection of appropriate injection techniques for common restorative and periodontal procedures.
 - d. Analyze the advantages, limitations, and potential complications of various maxillary injection techniques and how these factors inform the need for alternative approaches.
 - e. Demonstrate appreciation for the importance of technique selection, anatomical awareness, and patient communication in promoting safe, comfortable, and effective maxillary anesthesia.
9. Chapter 16; Mandibular Anesthesia I: Pulpal Anesthesia:
Chapter 17; Mandibular Anesthesia II: Complementary Anesthesia:
- a. Name the primary mandibular pulpal anesthesia techniques.
 - b. Explain the anatomical considerations and clinical indications that guide the selection of mandibular anesthesia techniques.

- c. Apply knowledge of mandibular anatomy and anesthetic principles to the selection of appropriate primary or supplemental techniques for common clinical scenarios.
- d. Analyze the advantages, limitations, and clinical implications of complementary mandibular anesthesia techniques.
- e. Exemplify the importance of careful technique selection, patient communication, and anatomical awareness in promoting safe, effective, and patient-centered mandibular anesthesia.

10. Chapter 18; Supplementary Techniques in Cases of Failure:

- a. List the four supplementary anesthetic techniques and their primary indications.
- b. Explain the unique characteristics of supplementary techniques, including their localized action, independence from anatomical variations, and rapid systemic uptake.
- c. Analyze the limitations, contraindications, and potential systemic risks associated with supplementary techniques.
- d. Evaluate anesthetic failure patterns and their implications for selecting appropriate supplementary techniques in common clinical scenarios.
- e. Demonstrate appreciation for the careful, conservative, and patient-centered use of supplementary anesthetic techniques, recognizing their role in managing failure while minimizing discomfort and systemic risk.

11. Chapter 19; Failure of Dental Local Anesthesia:

- a. Identify common causes of local anesthetic failure.
- b. Discuss how inflammation, accessory innervation, anxiety, and tissue changes interfere with anesthetic diffusion, binding, and nerve blockade.
- c. Apply knowledge of failure mechanisms to the development of appropriate adjustments in technique, anesthetic selection, or supplemental approaches for common clinical scenarios.
- d. Analyze the differences between failures caused by anatomy, pathology, patient factors, and operator technique and how each category influences the choice of corrective strategies.
- e. Demonstrate appreciation for the importance of calm, reflective clinical reasoning when anesthesia fails, valuing patient communication, reassurance, and evidence-based decision-making.

12. Chapter 8; Contraindications for Local Anesthetic Techniques in Dentistry:

Chapter 9; Contraindications for Local Anesthetics:

Chapter 10; Contraindications for Vasoconstrictors:

- a. Identify absolute and relative contraindications associated with local anesthetic techniques, anesthetic drugs, and vasoconstrictors.
- b. Explain how medical conditions, drug interactions, anatomical variations, and systemic diseases contribute to contraindications for specific techniques, anesthetics, or vasoconstrictors.
- c. Apply principles of medical history review and risk assessment to the evaluation of whether a planned anesthetic technique or drug selection is appropriate for a given patient scenario.
- d. Analyze the differences between contraindications related to injection technique, anesthetic agents, and vasoconstrictors and how each category influences clinical decision-making.
- e. Support the importance of thorough patient assessment, evidence-based judgment, and cautious anesthetic selection in preventing adverse outcomes and ensuring patient safety.

13. Chapter 22; Local Complications of Dental Local Anesthesia:

Chapter 23; General Complications of Dental Local Anesthesia:

- a. Identify common local complications and general/systemic complications.
- b. Explain the underlying causes and physiological mechanisms that contribute to both local and systemic complications during or after dental local anesthesia.
- c. Interpret principles of patient assessment, injection planning, and monitoring to predict potential complications and recognize early warning signs in clinical scenarios.
- d. Analyze appropriate management strategies for local and systemic complications and how indicated interventions vary based on the type, severity, and underlying cause of the complication.
- e. Demonstrate appreciation for the importance of preparedness, calm response, and patient-centered communication when managing complications, valuing safety as a core component of professional dental hygiene practice.

Syllabus Course Schedule:

This schedule is based on the Fall semester of 2026 for a 16-weeks long course. The schedule is subject to change due to unforeseen circumstances.

Semester Week Number	Day/Dates/Times of the Week	Chapter, Topics	Have items in this column completed BEFORE class. For assignment details, look in "Assignments & Submissions" tab. Complete any additional reading assignments and activities listed within each module.
Week 1	Wed. 8/26 10am-11am	Class introduction Discuss syllabus Chapter 4: The Peripheral Nerve and Local Anesthesia Teacher Lecture	Read: pages 50-63 In-class Group Activity: Wheel in a Wheel
Week 2	Wed. 9/2 10am-11am	Chapter 5: Pharmacology of Local Anesthetics	Read: pages 65-84 Guest Speaker: Dr. Anita Gupta, DO, PharmD, MPP
Week 3	Wed. 9/9 10am-11am	Chapter 6: Vasoconstrictors Teacher Lecture	Read: pages 85-106 Due: Homework #1 Pharmacology Worksheet
Week 4	Wed. 9/16 10am-11am	Chapter 2: Applied Anatomy I: Maxillary Arch Teacher Lecture	Read: pages 17-30 Due: Quiz 1 over weeks 1-3
Week 5	Wed. 9/23 10am-11am	Chapter 3: Applied Anatomy II: Mandibular Arch Teacher Lecture	Read: pages 31-49 In-class Activity: Pass the Pointer
Week 6	Wed. 9/30 10am-11am	Chapter 11: Instrument Set and Equipment, Chapter 12: Topical Anesthesia Teacher Lecture	Read: pages 173-216 Video: Local Anesthetic Syringe Assembly Due: Homework #2 Anatomy Labeling
Week 7	Wed. 10/7 10am-11am	Chapter 13: Basic Injection Technique	Read: pages 219-240 Due: Case Project and Presentation
Week 8	Wed. 10/14 10am-11am	MIDTERM EXAM	

Week 9	Wed. 10/21 10am-11am	Chapter 14: Maxillary Anesthesia I: Pulpal Anesthesia, Chapter 15: Maxillary Anesthesia II: Complementary Anesthesia of the Palate Teacher Lecture	Read: pages 241-280 In-Class Group Activity: Question and Answer Cards
Week 10	Wed. 10/28 10am-11am	Chapter 16: Mandibular Anesthesia I: Pulpal Anesthesia, Chapter 17: Mandibular Anesthesia II: Complementary Anesthesia	Read: pages 281-317 In-class Group Activity: Jigsaw (Group Experts)
Week 11	Wed. 11/4 10am-11am	Chapter 18: Supplementary Techniques in Cases of Failure Teacher Lecture	Read: pages 318-343 Due: Quiz 2 over weeks 9-10 Due: Homework #3 Compare Maxillary vs. Mandibular Anesthesia
Week 12	Wed. 11/11 10am-11am	Chapter 19: Failure of Dental Local Anesthesia Teacher Lecture	Read: pages 344-359 In-class Partner Activity: Problem Recognition Tasks
Week 13	Wed. 11/18 10am-11am	Chapter 8: Contraindications for Local Anesthetic Techniques in Dentistry, Chapter 9: Contraindications for Local Anesthetics, Chapter 10: Contraindications for Vasoconstrictors Teacher Lecture	Read: pages 135-170 Due: Quiz 3 over weeks 11-12
Week 14	Wed. 11/25	Thanksgiving Break No assignments; no class	Thanksgiving Break No assignments; no class
Week 15	Wed. 12/2 10am-11am	Chapter 22: Local Complications of	Read: pages 397-468 In-class Activity: Everyday Ethical Dilemmas

		Dental Local Anesthesia, Chapter 23: General Complications of Dental Local Anesthesia Teacher Lecture	Due: Homework #4 Contraindications Analysis
Week 16	Wed. 12/9 10am-11am	FINAL EXAM	

14	Thanksgiving break							
15	X				- Every day Ethical Dilemmas - Homework #4			
16								Final Exam
Total	10	1	3	1	6	1	1	5