Course Information

Course Number:	3530
Course Title:	Applied Dental Materials
Section:	**Spring 2025**
Time:	Tuesday 2:00-4:30, Thursday 1:00-4:30
Location:	Room 310, 2nd floor clinic, basement wet laboratory
Credit Hours:	3

Instructor Details

Course Director:	Eric Fox MS, RDH
Office:	136A
Phone:	214-828-8319
E-Mail:	efox@tamu.edu
Office Hours:	As needed or by appointment

Additional Participating Faculty

Maureen Brown, RDH
Martha Estrada, RDH
Ariana Vargas, RDH
Stan A Richardson, LIBST

Course Description

Didactic, laboratory, and clinical instruction in the principles of the science of Dental Materials and in the procedures within the scope of dental hygiene practice.

Course Prerequisites

None

Special Course Designation

DH

Course Learning Outcomes

Course Goal:

Course 3530 Applied Dental Materials course is designed to provide Dental Hygiene students with the principles of the science of Dental Materials and related technologies and to acquaint them with the materials used in the dental health field. The goal of the Applied Dental Materials Course is to build a foundation that will help the students pursue their goals to be successful dental hygienists.

Course Objectives:

Didactic, laboratory, and clinical instruction in the principles of the science of Dental Materials and in the procedures within the scope of dental hygiene practice.

Learning Objectives:

Lecture objectives are found at the end of the course syllabus. Objectives for each laboratory session can be found in the laboratory manual.

Related Competencies:

I. Professionalism

2.2 Commit to self-assessment and lifelong learning in order to provide contemporary clinical care.

II. Health Promotion and Disease Prevention

5.1 Identify services and agencies that promote oral health and prevent oral disease and related conditions.

III. Patient Care

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.
6.4 Recognize predisposing, etiologic risk factors, and lifestyle choices that may require intervention to prevent disease.
7.3 Establish a planned sequence of educational and clinical services based on the dental hygiene diagnosis using the problem-based approach.
8.3 Select and administer the appropriate preventive agents and/or antimicrobial (chemotherapeutic) agents and provide pre- and post-treatment instructions.

The following procedures are taught to clinical competency:
1) placement of pit and fissure sealants.
2) fabrication of a bleaching tray.
3) application of whitening agent.

The following procedures are taught to laboratory competency:
1) placement of a temporary restoration.
2) debond orthodontic resin.
3) application of silver diamine fluoride
4) take a maxillary and mandibular alginate impression.
5) pouring and trimming stone casts

Textbook and/or Resource Materials

Dental Materials, Clinical Applications for Dental Assistants and Dental Hygienists 4th Edition
by W. Stephan Eakle, DDS, FADM and Kimberly G. Bastin, CDA, EFDA, CRDH, MS (EB)

Wilkins E.M.: Clinical Practice of the Dental Hygienist. Wolters Kluwer, 13th edition, 2021. (W)

Darby M.L. and Walsh M.M.: Dental Hygiene Theory and Practice. 5th edition, W.B. Saunders Company, 2020.(DW)

Additional readings and handouts may be provided by each lecturer. It will be the students' responsibility to read the material.

Grading Policy

Grade Scale
A = 90-100%
B = 80-89%
C = 75-79%
D = 70-74%
F = <70%

Examinations:	60%	Five written examinations valued at 12% each for a total of 60%, the lowest exam grade will be dropped.
Laboratory & Clinical Performance:	10%	Attendance and participation in lab is mandatory; complete all laboratory experiments and projects as demonstrated by summary and critique sheets for each laboratory.
Quizzes:	15%	Quizzes will incorporate material presented in lecture and laboratory. Quizzes will be given only during the first 10 minutes of the class or laboratory session. At the end of the semester, the lowest quiz grade will be dropped.
Proficiency Exam:	15%	Proficiency Exams will encompass performing procedures to clinical competency. (Appendix A-C).
	100%	

Grades, including the final course grade, will not be curved or rounded.

Proficiency exams will encompass performing procedures to clinical competency. If a student does not meet this requirement, they will have to redo their proficiency exam and the maximum attainable grade will be a 75.

The teaching methods that will be utilized in class will include lecture and classroom discussion. The lectures will be recorded and can be found on Course Recordings on Canvas. Laboratory work will include self-assessment by the student and faculty evaluation.

Examination Protocol:

All exams will be administered electronically via examsoft. If a student does not have their own personal computer or iPad, a loaner is available. Students should contact Ms. Carmina Castro (x8316) or Mr.Jeff Lowry (8243) one day before the exam.

In preparation for the exam, the students are responsible for:

1) Rebooting their laptop before exam sessions.
2) Knowing their NetID and UIN.
3) Closing and exiting all applications on their device.
4) Ensuring that the DUO dual-authentication is functional and accessible.
5) Maintaining their device (laptop or iPod) in good working condition, including keeping their device up to date and patched.

The course director can adapt/modify the syllabus, as needed. The course director will provide written notice to all students in as advance as possible for any changes that may arise.

Students are expected to arrive on time for the exam session with a working iPad or laptop and be ready to start the exam at the posted start time. It will be the student's responsibility to make sure their device is working and have downloaded the exam to their device before the exam session.
Students who arrive late or use the examination time to download the test **WILL NOT** receive additional time to complete the exam. All cell phones, smart watches and fit bits will need to be put away in the student's bag/backpack prior to starting the exam.

Students should also take care of all personal business prior to entering the classroom. However, if the student feels they need to leave the room during the exam, they will be required to log off ExamSoft and **WILL NOT** be allowed to return to the classroom (regardless if they did or did not finish the exam). **NO EXCUSES WILL BE ALLOWED**.

Students are expected to exit and upload the exam at the end of the posted exam session.

Unexpected technical issues can occur with electronic devices. Consideration will be given for unforeseen problems or IT infrastructure issues. The above guidelines are to ensure that the student has the best possible and least disruptive exam session as possible.

NO make-ups will be given for the PROFICIENCY EXAMS. Students who have an unexcused absence during these exams will receive a 0 (zero).

Reviewing Quizzes and Examinations:

Questions regarding posted grades and test items on the exams and or quizzes must be brought to the attention of the course director within **TWO WEEKS** after the grades are recorded. Exams and quizzes

can only be reviewed in the course director's office. If a student wishes to review an exam, they must send Mr. Fox an email requesting an appointment to meet with him. Any concerns regarding a specific exam or quiz question must be submitted to the course director by email and/or the feedback option in Examsoft and include the question/content, rationale and supporting evidence (powerpoint notes, assigned reading) for the reason student chose a particular answer.

Course Schedule

Date	Time	Session Title/Topic	Reading Assignment	Faculty	Location
Week 1 Jan. 7 Tues.	2:00 - 2:50 3:00 - 4:00	**Lectures:** Introduction to Dental Materials/Oral Environment/General Handling and Safety/	**EB**: Ch 1,2, 4,	Prof Fox	Room 310
Jan 9 Thur.	1:30 – 3:00	Distribute Instrument Kits		Prof Fox DM Faculty	Room 310
Week 2 Jan 14 Tues.	2:00 – 4:00	**Quiz 1 (covers week 1)** **Lecture**: Radiographic Appearance of Dental Tissues and Materials	**GB**: Ch 15	Prof Fox	Room 310
Jan 16 Thur	1:30 – 4:30			DM Faculty	2nd Floor Clinic
Week 3 Jan 21 Tues.	2:00 - 2:50 3:00 – 4:00	Dental Cements/Adhesion and Bonding Provisional Restorations	**EB:** Ch 5,14 18	Prof Fox	Room 310
Jan 23 Thur	1:00 - 1:50 2:00 - 4:30	**Rubber Dam Application on typodont + Laboratory 3B: Placement of IRM Temporary Restoration without matrix band**	**Lab Manual** p 25-27	Prof Fox DM Faculty	Room 310 2nd Floor Clinic
Week 4 Jan 28 Tues.	2:00 - 2:50 3:00 - 3:30	**Quiz 2 (covers week 2 & Jan 21)** Clinical Detection & Management of Dental Materials During Scaling and Root Planing	**GB**: Ch 14 Found in Canvas Module	Prof Fox	Room 310
Jan 30 Thur.	1:00 - 2:00	**EXAM 1 (covers week 1-2)**		Prof Fox	Room 310

Week 5 Feb 4 Tues.	2:00 – 3:00	**Lecture: Lecture: Elastic Impression Material** Alginate and Agar Impressions. Clinical Application of Alginate Impression **Lecture: Dental Stone** Gypsum Fabrication of Stone Cast: Pouring Gypsum	**EB:** Ch 15,16	Prof Fox	Room 310
Feb 6 Thur	1:30 – 4:30	**Laboratory 4: GROUP A & B** Alginate Impressions (On Typodont) **Lab 5: Stone Pour Up**	Lab manual p 28-46	DM Faculty Prof Fox	2nd Floor Clinic Room 310
Week 6 Feb 11 Tues	2:00 – 4:30	**Quiz 3 (weeks 4-5)** **Lecture** Fabrication of Stone Casts: Trimming Stone Casts (Typodonts)	**EB: Ch 16** Lab manual p 47-54	Prof Fox	Room 310
Feb 13 Thur.	1:30 – 4:30	**Lab 6: Trimming of Stone Casts Typodonts**		DM Faculty	Wet Lab in basement
Week 7 Feb 18 Tues.	2:00 - 2:30 2:30 – 4:30	**Lectures:** Composites, Glass Ionomers, and Compomers Abrasion, Finishing, Polishing, and Cleaning	**EB:** Ch 6,13	Prof Fox DM Faculty	2nd Floor Clinic and Lab
Feb 20 Thur.	1:30 - 4:30	**Laboratory 7A & B: GROUP A & B** Clinical Application of Alginate Impressions Pouring Stone Casts Pt/Partner Casts (Single Pour for Both Arches)	Lab manual p 54-59	DM Faculty	2nd Floor Clinic 2ndFloor Clinic
Week 8 Feb 25 Tues.	2:00 – 3:00	**Exam 2 (weeks 3-5)**			Room 310
Feb 27 Thur.		**TDHA San Marcos**			
Mar 4 Tues	1:30 - 4:30	**Quiz 4 (covers Week 6-7)** Review Alginate Impressions			
Week 9 Mar 6 Thur	2:00 – 4:30	**Clinical Proficiency Exam #1 Group A & B** Alginate Impression On Typodont	Lab manual p 54-59	DM Faculty	2nd Floor Clinic
Week 10 Mar 10-14		**SPRING BREAK**			

Week 11 Mar 18 Tues	1:00 - 1:50 2:00 - 3:00	**Lectures:** Acrylic Resins/Prosthetic Polymers	**EB:** Ch 17	Dr. Chau	Room 310
Mar 20 Thur	1:00-2:00	**Laboratory 8:** Trimming Stone Casts (Patient Partners Stone Casts and possibly typodont stone casts)	Lab manual p 60-65	Fox DM Faculty	2nd Floor Clinic Wet Labs
Week 12 Mar 25 Tues	2:00-3:00 4:00-4:30	Bleaching Lecture Clinical Application of Bleaching	**EB**: Ch 8; **DW** p 515-518: **W** p 800-813	Prof Estrada	Room 310
Mar 27 Thur	2:00 – 4:30	**make-Up Lab**		Prof Fox DM Faculty	2nd floor Clinic
Week 13 April 1 Tues.	2:00-4:30	**Quiz 5 (covers week 11-12)** **Lecture**: Air Powder Polishing w/Cavitron prophyjet and EMS Air flow	**EB:** Ch 13 (pgs 284-285) **GB:** reading assignment in Canvas	Prof Fox	Room 310
April 3 Thur.	1:30-4:30	**Laboratory 11 A & B:** Fabrication of Bleaching Tray of Patient Partners Cast Application of Gingival barrier on Typodont	Lab manual p 78-81, 81-82	Prof Fox DM Faculty	Room 310 2nd floor Clinic
Week 14 April 8 Tues	2:00 – 3:00 3:00 - 4:30	**Exam 3 (covers week 6-12)** **Lectures:** Dental Amalgam Mercury Hygiene	**EB:** Ch 10	Prof Fox	Room 310
April 10 Thur	1:30 – 4:30	**Clinical Proficiency Exam #2** Clinical Application of Bleaching Agent on Patient Partner Group A & B	Lab manual p 83-89	DM Faculty	2nd Floor Clinic
Week 15 April 15 Tues.	2:00 - 3:15 3:30 – 4:30	**Lecture:** Pit & Fissure Sealant **Laboratory 12:** Placement of Pit and Fissure Sealants on Extracted Teeth	**EB**: p 131-136 Lab manual p 90-92	Prof Fox DM Faculty	Room 310 2nd Floor Clinic

April 17 Thur	1:30 – 4:30	**Clinical Proficiency Exam #3:** **(See Laboratory 12 for instructions)** Placement of Pit and Fissure Sealant on Patient Partner	Lab manual p 93-96	DM Faculty	2nd Floor Clinic
Week 16 April 22 Tues	2:00 - 2:50	**Quiz 6 (week 13-14)** **Lecture:** Silver Diamine Fluoride	2 Scientific articles	Prof Fox	Room 310
April 24 Thur.	1:00 - 2:00 2:15 - 4:30	**Exam 4 (covers week 13- 4/22)** **Laboratory**: SDF application to extracted teeth			Room 310
Week 17 April 29 Tues	2:00 – 4:30	**Quiz 7 (covers week 15-16)** **Lectures:** Dental Ceramics Colors & Esthetics	**EB:** Ch 9 except p 173-178	Prof Fox	Room 310
May 1 Thur.	1:00 - 1:50 2:00 - 2:50	**Lecture:** Debonding Orthodontic Resin **Laboratory 13:** Debonding Orthodontic Resin from Extracted Teeth	**GB**: (p 385-389 scanned pages in Canvas) Lab manual p 97-99	Prof Fox DM Faculty	Room 310 2nd Floor Clinic
Week 18 May 6 Tues.	2:00 - 3:15	**Quiz 8 (week 17)** **Lecture, Demo & Laboratory:** Placement and Removal of Ligature Wires and Elastics	**EB:** p 230-232 **DW** p 632-635	Mr. Richardson DM Faculty	Room 310 2nd Floor Clinic
May 8 Thur.	1:00 - 2:00 2:00 - 3:00	**EXAM 5 (week 17 -18)** Turn in Instrument Kits and Typodont		Prof Fox DM Faculty	Room 310 2nd Floor Clinic
May 12-16	TBD	**ADDITIONAL MAKE-UP LABORATORY SESSION (Finals Week)**		Faculty	TBD

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- ***Note: Schedule may be changed accordingly at the Course Director's discretion***

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 regarding 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: https://it.tamu.edu/help/ Phone: 1-979-845-8300 Email: helpdesk@tamu.edu	COD Local Division of IT Office Room: 519 Phone: 214-828-8248

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	(214-828-8316)
Jeff Lowry	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

The teaching methods that will be utilized in class will include lecture and classroom discussion. The lectures will be recorded and can be found on Course Recordings on Canvas. Laboratory work will include self-assessment by the student and faculty evaluation.

Examination Protocol:

All exams will be administered electronically via examsoft. If a student does not have their own personal computer or iPad, a loaner is available. Students should contact Ms. Carmina Castro (x8316) or Mr.Jeff Lowry (8243) one day before the exam.

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 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.**

For additional information on excused absences, see Texas A&M Student Rule 7.1 at https://student-rules.tamu.edu/rule07.

Unexcused Absences

Tardiness and non-emergent appointments (illnesses not considered severe or contagious) scheduled during class time will be considered an unexcused absence. Quizzes and exams start at the beginning of class time. Students who arrive late will not receive extra time to take the quiz/exam. Since classroom learning applies directly to patient care, sleeping in class is considered an unexcused absence and is subject to the remediation policy. **Students with unexcused absences or late arrivals (more than 15 minutes late) will have TWO points deducted from their final course grade with each occurrence. No make-up quiz/test will be given if the absence is considered unexcused on a test day. Examinations will not be administered in advance for a planned/anticipated unexcused absence.**

Students are required to remain in class and/or laboratory sessions the entire time it is scheduled or until everyone has completed their work, unless released by course director.

Other Pertinent Course Information

General Information

The designation of excused or unexcused absence will be determined on an individual basis by the Program Director and 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 a make-up assignment(s) within **10 calendar days (including weekends) after returning to school.** The make-up assignment will require the student to thoroughly answer the learning objectives for the class session(s) and define any listed terminology. The assignment must demonstrate the student has listened to the recording(s) that is uploaded on Canvas and read the assigned reading. Make-up assignments must be typed, contain the title of the missed class session(s) and be sent via email within the 10-calendar-day deadline. **Failure to complete the make-up assignment(s) within this time frame will result in TWO points being deducted from student's final grade. IMPORTANT:** Failure to remediate all absences (excused or unexcused) by the end of the semester may result in an "F" for the course. **To review the comprehensive Texas A&M University student attendance rule, go http://student-rules.tamu.edu/rule07.**

Laboratory/Pre-clinical/Clinic Policies and Procedures:

The laboratory experiments and clinical experiences serve two important functions. They are designed to: 1) provide the student with the opportunity to become familiar with the various materials used in dental health care and 2) emphasize the important variables which can affect the manipulation and ultimate performance of the materials used in common dental procedures. The uses and handling of the materials taught in this course have been closely coordinated with material from other courses. This course should be viewed as an opportunity to experiment with the materials the student will be exposed to throughout his/her dental hygiene career. Appropriate laboratory procedures will be taught during each lab session.

Clinic attire is to be worn during all laboratory sessions. Students should also have their hair tied back and bring safety glasses to lab/clinic.

Each student will self-evaluate their performance on the laboratory/clinical evaluation form provided in the lab manual and will be graded by the instructor at the end of lab and/or clinic. Laboratory/Clinical Evaluation Sheets must be turned into the instructors at the end of class. Certain lab activities will have associated videos that are expected to be viewed prior to lab sessions. **If a student has an excused or unexcused absence during lab, they must complete the lab on the make-up days posted on the course schedule.**

Students will NOT be able to participate in lab if they do not have their laptops/tablets, eye protection, and typodont pole. Eye protection and typodont poles are limited, if we don't have enough eye protection or typodont poles, you may have to complete the lab at a designated make-up laboratory session. Failure to make-up the lab, will result in a 0.

Dental X-rays: Students will be placing pit and fissures and whitening agent on a student partner. In order to determine if a tooth does not have interproximal decay, a current bitewing radiographic series is needed. Students can request x-rays from their dentist and have them sent to the college or have bitewings taken in Spring clinic.

In general, emails will be returned by Mr. Fox during regular business hours. Please be aware that emails sent after 5 pm may not be answered until 9:00 am the next day.

Announcements, weekly quiz information and grades will be posted on Canvas. It will be the student's responsibility to check Canvas daily to keep up to date with any changes that may occur during the semester. Students should come to class alert, attentive and take notes during each class session. Cell phones/smart phones/iPhones/apple watches that allow communication to the outside world, must be turned off and/or placed out of reach during each class session. Laptop computers and/or iPads are allowed as long as they are being used for taking notes or looking up information related to class. This course will have guest lecturers who are donating their time to the dental hygiene students. Any student who demonstrates behavior that is disruptive during class (i.e. talking, laughing, text messaging, ringing cell phone, or studying materials from other courses), will be asked to leave the room. **If you are asked to leave the room, this will be counted as an unexcused absence.** If a student has a critical family matter that warrants the need for ready access to their phone, this should be discussed with Mr. Fox or Dr. Chau prior to the start of class.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu. If you believe you have a disability requiring accommodation, please contact Dr. Paul Dechow, Associate Dean for Academic Affairs, Room 514 or call 214-828-8208 for additional information.

Academic Integrity

"*An Aggie does not lie, cheat, or steal, or tolerate those who do.*"

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the honor Code, to accept responsibility, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on quizzes, examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information students should visit *http://aggiehonor.tamu.edu.*

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

Makeup 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 reason deemed appropriate by the instructor.

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).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

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).

Texas A&M College of Dentistry
You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at 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 College of Dentistry
Texas A&M University is committed to providing equitable access to learning opportunities for all students. All students are encouraged to discuss their disability-related needs with Disability Resources and their instructors as soon as possible. If you experience barriers to your education due to a disability which may include, but not limited to: attentional, learning, mental health, sensory, physical, or chronic health conditions, visit Disability Resources for more information. http://disability.tamu.edu.

The primary contact for any new disability accommodation requests and for any accommodation questions/concerns:

Tracey Forman, Associate Director of Disability Resources
979.845.1637 | traceyf@disability.tamu.edu |

Staff and administration in Student Affairs, Student Development and Academic Affairs are available as needed to discuss any concerns and navigate the accommodations process with our students locally.

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.

Texas A&M College of Dentistry
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 College 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. 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. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or webinar. Scan the QR code to download the app and explore the resources available to you for guidance and support whenever you need it.

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 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.

Lecture Objectives

Ch 1

1. Discuss the importance of the study of dental materials for the allied oral health practitioner.
2. Discuss why it is necessary that the allied oral health practitioner have an understanding of dental materials in the delivery of dental care.
3. Discuss evidence-based decision-making (EBDM) as it relates to dental materials; what questions might you ask yourself or your practice to ensure you are increasing the potential for successful patient care outcomes?
4. Review the historical development of dental materials.
5. List and compare the agencies responsible for setting standards and specifications of dental materials.
6. Discuss the requirements necessary for a consumer product to qualify for the ADA Seal of Acceptance.

Ch 2

1. Discuss the qualities of the oral environment that make it challenging for long-term clinical performance of dental materials.
2. Describe the long-term clinical requirements of therapeutic and restorative materials.
3. List and give examples of four types of biting forces and the tooth structures most ideally suited to them.
4. Define stress, strain, and ultimate strength and compare the ultimate strength of restorative materials during each type of stress to tooth structures.
5. Explain how moisture and acidity in the mouth can affect dental materials.
6. Explain how galvanism can occur in the mouth and how it can be prevented.
7. Discuss thermal conductivity and thermal expansion and contraction, and compare the values of thermal expansion and conductivity of restorative materials with those of tooth structures.
8. Explain how mechanical and chemical adhesion, or bonding, work to retain restorations.
9. Describe the factors that determine successful adhesion, including wettability, viscosity, film thickness, and surface characteristics.
10. Describe microleakage and how it can lead to recurrent decay and postoperative sensitivity.
11. Define biocompatibility and discuss why requirements for biocompatibility may fluctuate.
12. Describe tooth color in terms of hue, value, and chroma.
13. Discuss the characteristics of oral biofilm and its role in the etiology of dental caries and periodontal disease.
14. Explain the importance of detection of restorations and methods for detection.

Ch 4

1. Identify five job-related health and safety hazards for employees in dental offices, and explain the methods of prevention for each one.
2. Explain the components of the Occupational Safety and Health Administration Hazard Communication Standard.
3. Describe the ways that chemicals can enter the body.
4. Describe the employee and employer responsibility for safety training.
5. Describe the basic infection control methods for the handling of dental materials in the treatment area.
6. Identify the concepts and benefits of going green in the dental practice.
7. Discuss how the ADA Top Ten Initiatives of sustainability can be incorporated into a general dental practice.

Ch 5

1. Discuss the effects of acid etching on enamel and dentin.
2. Describe the basic steps of bonding.
3. Explain the differences between bonding to enamel and bonding to dentin.
4. Discuss the significance of the smear layer.
5. Describe“wet”dentin bonding.
6. Compare etch-and-rinse and self-etch bonding techniques.
7. Explain how the hybrid layer is formed and its importance in bonding to dentin.
8. Explain how universal adhesives differ from etch-and rinse and self-etch adhesives.
9. Discuss the factors that interfere with good bonding.
10. Discuss the adverse effects of microleakage at restoration margins.
11. Describe how to bond ceramic veneers.
12. Describe the bonding of orthodontic brackets.
13. Explain the differences in bonding to enamel, dentin, metal, and ceramic.
14. List the factors that contribute to tooth sensitivity after bonding.
15. Etch enamel and dentin with phosphoric acid as permitted by state law.
16. Apply a bonding system to etched enamel and dentin as permitted by state law.

Ch 6

1. Describe the various types of composite resin restorative materials.
2. Discuss the advantages and disadvantages of each type of composite resin.
3. Discuss the similarities and differences among chemical-cured, light-cured and dual-cured composite resins.
4. Describe how fillers affect the properties of composites.
5. Explain why incremental placement of composite resin is recommended.
6. Describe the factors that determine how long an increment of composite resin should be light-cured.
7. Place a sectional matrix for a class II composite.
8. Select an appropriate type of composite for a class II cavity preparation.
9. As permitted by state law, place a composite in a class II cavity preparation.
10. Light-cure a composite resin restoration following recommended exposure times and use proper precautions for eye/retina protection.
11. As permitted by state law, finish and polish a class III composite restoration.
12. Discuss the procedural differences between direct and indirect composite restorations.
13. Describe the composition of glass ionomer restoratives and their uses, advantages and disadvantages.
14. Explain the effects of fluoride-releasing, resin-modified glass ionomer restorations in the prevention of recurrent caries.
15. List the components of compomers.
16. Describe the uses of compomers.
17. Compare the clinical applications of composite resin restorative materials with glass ionomer cement restorative materials

Ch 8

1. Describe how whitening materials penetrate the tooth.
2. Compare and contrast the whitening materials used for in-office, take home, and OTC home use.

3. Describe the precautions to take to protect the oral tissues when applying in-office power whitening products.
4. List the steps in the procedures for in-office power whitening.
5. List the potential side effects of in-office power whitening.
6. List the potential side effects of home whitening.
7. Describe the methods to whiten nonvital teeth.
8. Discuss the relative effectiveness of whitening products and whitening toothpastes in removing stains from teeth.
9. Demonstrate proper fabrication of home whitening trays.
10. Explain to a patient how home whitening products are used.
11. Identify clinical situations in which enamel microabrasion might be used.
12. Explain how enamel microabrasion works.

Ch 9

1. Discuss the attributes and shortcomings of dental porcelains.
2. Compare the clinical applications of restorations made from porcelain with those made from lithium disilicate.
3. Explain why crowns made from zirconia can be used to restore molars.
4. Describe the methods used to process ceramic restorations.
5. Present a rationale for the selection of ceramic materials for restorations used in the anterior and posterior parts of the mouth.
6. Describe how porcelain bonds to metal for porcelain-fused-to-metal (PFM) crowns.
7. Select the appropriate cement for use with glass-based ceramic materials.
8. Describe common causes for failure of ceramic restorations.
9. Finish and polish ceramic restorations without generating too much heat or stress in the material.
10. Compare the relative strengths of feldspathic porcelain, lithium disilicate, and zirconium.
11. Explain how CAD/CAM technology is used to fabricate a ceramic crown.
12. List the clinical applications for all-ceramic restorations.
13. Prepare the ceramic rest Lithium Disilicate Ceramics oration for bonding with resin cement.
14. Assist the dentist in cementing an all-ceramic crown or veneers.
15. Properly prepare the conditions in the operatory for shade taking.
16. Assist the dentist in shade taking.

Ch 10

1. List the main components in dental amalgam.
2. Describe the advantages of high-copper amalgams over low-copper amalgams.
3. Explain the role of the gamma-2 phase in corrosion of amalgam.
4. Describe the particle shapes in lathe-cut, admix, and spherical alloys, and discuss their effects on the condensation resistance of freshly mixed amalgam.
5. Define creep, corrosion, and tarnish.
6. Compare the strength of amalgam with that of composite resin or glass ionomer cement.
7. Discuss the effect of mixing time on the strength and manipulation of amalgam.
8. Discuss the advantages and disadvantages of amalgam as a restorative material.
9. Discuss the safety of amalgam as a restorative material.
10. Perform safe mercury hygiene practices in the dental office.

11. Collect and process amalgam scrap for recycling.
12. Select an appropriate size of matrix band for a class II amalgam preparation.
13. Assemble a Tofflemire band in its retainer.
14. Evaluate a class II amalgam matrix setup for meeting proper placement criteria.
15. Assist with or place (as allowed by state law) amalgam in a class II cavity preparation.

Ch 13

1. Define abrasion, finishing, polishing, and cleaning.
2. Discuss the purpose of finishing, polishing, and cleaning of dental restorations and tooth surfaces.
3. Identify and discuss the factors that affect the rate and efficiency of abrasion.
4. Compare the relative ranking of abrasives on restorations and tooth structures.
5. Describe methods by which dental abrasives are applied.
6. Discuss the contraindications to the use of abrasives on tooth structure and restorations.
7. Describe the clinical decisions made to determine which abrasive to use when finishing, polishing, or cleaning dental restorations or tooth structures.
8. Describe the abrasives and the procedures used for finishing and polishing metals, composite, and porcelain.
9. Describe the abrasives and the procedures used for polishing and cleaning metals, composite, ceramic, and gold alloys as part of oral prophylaxis.
10. Describe the safety and infection control precautions taken by the operator when using abrasives.
11. Relate the instructions given to patients to prevent and remove stain from tooth surfaces and restorations.
12. Finish and polish a preexisting amalgam restoration.
13. Polish a preexisting composite restoration.

Ch 14

1. Compare the various types of cements for:
    - Pulpal protection
    - Luting
    - Restorations
    - Surgical dressing
    -
2. Describe the properties of cement and explain how these properties affect selection of cement for a dental procedure.
3. Identify the components of the various dental cements.
4. Describe how the components of various dental cements affect the properties of the cement.
5. Compare the advantages and disadvantages of each cement.
6. Describe the manipulation considerations for mixing cements.
7. Describe the procedure for filling a crown with luting cement.
8. Describe the procedure for removing excess cement after cementation.

Ch 15

1. Describe the purpose of an impression.
2. Describe the three basic types of impressions.

3. Explain the importance of the key properties of impression materials.
4. Explain why alginate is an irreversible hydrocolloid.
5. List the supplies needed to make an alginate impression and explain how they are used.
6. Select trays for alginate impressions for a patient.
7. Mix alginate, load and seat the tray, and remove the set impression.
8. Evaluate upper and lower alginate impressions, in accordance with the criteria for acceptability.
9. Disinfect alginate impressions and prepare them for transport to the office laboratory.
10. Troubleshoot problems experienced with alginate impressions.
11. Compare similarities and differences among the physical and mechanical properties of polyvinyl siloxane (PVS) and polyether impression materials.
12. Discuss the advantages and disadvantages of using polyether impression material for a crown impression.
13. Explain the difference between a hydrophobic and a hydrophilic impression material.
14. Evaluate cord placement and gingival retraction for acceptability.
15. Use ferric sulfate astringent to control gingival bleeding before making an impression.
16. Make a registration of a patient's bite in centric occlusion.
17. Assemble the cartridge of impression material with mixing tip and load into the dispenser.
18. Explain what a digital impression is and how it is used.
19. Describe the advantages and disadvantages of digital impressions.
20. Disinfect PVS and polyether impressions and prepare them for transport to the dental laboratory.

Ch 16

1. Differentiate between negative and positive reproduction.
2. Differentiate among diagnostic cast, working cast, and dies.
3. Describe the chemical and physical nature of gypsum products.
4. Explain the manufacturing process for gypsum products and how this affects their physical characteristics.
5. Compare the following properties and behaviors of gypsum products: strength, dimensional accuracy, solubility, and reproduction of detail.
6. List the American Dental Association–recognized gypsum products and their most appropriate uses.
7. Explain initial and final set of gypsum and the factors that affect the setting time, setting expansion, and strength.
8. Explain the procedure for mixing and handling gypsum products to create diagnostic casts.
9. Identify the common components of dental waxes.
10. Compare the properties of waxes.
11. Describe the clinical/laboratory significance of each of the properties of waxes.
12. Discuss the three classifications of waxes.
13. Differentiate between direct and indirect waxings and identify which property of dental waxes is most important in their difference.
14. Describe the usual color, form, and use of inlay, casting, baseplate, boxing, utility, and sticky waxes.
15. Prepare model plaster or stone for pouring.
16. Pour the anatomic and base portions of maxillary and mandibular diagnostic casts.
17. Trim maxillary and mandibular diagnostic casts.
18. Obtain a bite registration, using bite registration or utility wax.

Ch 18

1. Explain the purpose of provisional coverage.
2. Describe examples of circumstances that may require provisional coverage.
3. Identify the criteria necessary for a high-quality provisional restoration.
4. Describe the properties of provisional materials.
5. Distinguish among properties that are important for coverage in the posterior, anterior, and both areas.
6. Differentiate between intracoronal and extracoronal restorations.
7. Summarize the advantages and disadvantages of preformed and custom crowns.
8. Differentiate among direct and indirect fabrication techniques.
9. Summarize the advantages and disadvantages of acrylic and composite resin provisional materials.
10. Describe the technique for fabrication of preformed metal and polycarbonate crowns, custom crowns, and intracoronal cement provisional restorations.
11. Summarize patient education and home care instructions.
12. Fabricate and cement metal, polycarbonate and custom provisional crowns.
13. Place an intracoronal cement provisional restoration.

Clinical Aspects of Dental Materials Gladwin & Bagby
Ch 14

1. Differentiate between ceramic and composite materials.
2. Discuss how the following criteria may help a clinician to distinguish between tooth tissues and restorative materials or between two types of restorative materials:
   -Radiographic characteristics
   - Surface smoothness
   -Tactile and auditory sensations
   -Location
3. Describe some common procedures routinely performed by a dental hygienist that could be detrimental to teeth and restorative materials.
4. Verbally compare the expected differences in the surfaces of enamel and a gold crown after polishing with an abrasive agent.
5. Recall the recommended instrumentation technique around the margins of cast restorations.
6. Explain the causes of possible damage to restorations from the use of high-speed instrumentation.

Trimming of Stone Casts

1. outline the procedures for trimming the maxillary and mandibular casts.

2. list the criteria for an acceptable diagnostic cast.

3. assess the finished diagnostic cast of a typodont impression for acceptability.

4. value the importance that diagnostic casts have in treatment planning, patient education, and fabrication of temporary appliances.