

SYLLABUS

COURSE: CLIN 3006 Operative Dentistry Clinic
SEMESTER: Fall/Spring/Summer
CREDIT HOURS: 4.0

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GOAL

The purpose of CLIN 3006 Operative Dentistry Clinic is to increase knowledge and improve skills in clinical Operative Dentistry. The primary focus includes the management and comprehensive dental care of patients requiring basic Operative Dentistry procedures. Students will also continue to develop patient assessment, diagnosis, prognosis and treatment planning abilities to help ensure success of subsequent fundamental Operative Dentistry procedures. Emphasis will be placed on the delivery of quality, compassionate and ethical comprehensive dental care. This care includes: 1) evaluation of the caries risk of the patient; 2) the evaluation of the health of pulpal tissue as it relates to the restoration of damaged teeth; 3) the evaluation of the periodontium as it relates to the restoration of damaged teeth; 4) the selection of the appropriate cavity design(s) and dental material(s) that restore damaged teeth to their optimal form, function and occlusal relationships; and, 5) adequate patient comfort.

OUTLINE

- I. Students during the third year Operative Course will gain experience in the following:
 - A. The evaluation of the health of pulpal tissue as it relates to the restoration of damaged teeth
 - B. The evaluation of the periodontium as it relates to the restoration of damaged teeth
 - C. Assessment of caries risk, evaluation of caries and other causes of damaged dentition.
 - D. Diagnosis and management of caries through prevention, remineralization and other therapies.
 - E. The restoration of damaged teeth
 - 1. appropriate cavity design
 - 2. appropriate dental materials
 - 3. proper form
 - 4. optimal function
 - 5. occlusal harmony
- II. Students will demonstrate appropriate basic clinical Operative Dentistry procedure development by using the following:
 - A. Proper conceptual understanding
 - B. Proper judgment
 - C. Adequate technical capability
- III. Appropriate basic clinical Operative Dentistry procedure goals
 - A. Successful completion of the Third Year Operative Competency examinations

CRITERIA TO ACHIEVE COMPETENCIES

Students are expected to complete all operative procedures for their assigned patients. The following criteria must be achieved to demonstrate overall Operative competency to complete the third year course. These criteria include:

1. Appropriate data collection, interpretation, assessment and diagnosis
2. Evaluation of the periodontal condition as it relates to subsequent Operative dental procedures
3. Analysis of occlusal relationships and how they will impact subsequent restorative dental procedures
4. Development of an appropriate treatment plan
5. Competent patient communication - assessment, diagnosis, prognosis, treatment options explained, understood and agreed upon by the patient, parent or guardian
6. Adequate anesthesia delivery and anxiety control
7. Proper rubber dam isolation
8. Optimal restorative treatment including the correct cavity design selection and preparation for the damaged tooth (teeth)
9. Proper choice and placement of cavity liners and/or bases if necessary
10. Proper choice and placement of restorative material(s)
11. Proper temporary restoration fabrication if necessary
12. Optimal restoration of anatomical form, function and occlusal harmony to the restored tooth (teeth)
13. Overall skillful, ethical and compassionate delivery of comprehensive dental care, while maintaining professional integrity.
14. Treatment of the patient, staff and faculty with respect and honesty

Successful completion of this course also involves the understanding and procedural incorporation of all stated Third Year Operative Clinical Competency Assessment criteria listed on the Third Year Operative Clinical Competency Assessment criteria sheets posted in clinic.

Class II Preparation

Third Year Operative Competency Assessment Criteria Sheet

I. Outline and Extension

- A. Outline and extension is optimal.

- B. There is optimal removal of decalcification and optimal extension into fissures if necessary.
- C. Proximal cavosurface angles are 90°, buccal and lingual.

II. Internal Form

- A. Proximal retention is optimal.
- B. Walls are appropriately convergent occlusally and, when applicable, appropriately divergent occlusally.
- C. Pulpal floor is of optimal depth (**normally greater than 1.5 mm; 0.2 mm into dentin**); the axial wall is neither too shallow nor too deep pulpally (gingival floor should be 1.2 - 1.5 mm wide mesially – distally and approximately 0.5 mm into dentin).
- D. Enamel is supported, not fragile, and the cavosurface enamel is smooth.
- E. Dentinal walls are generally smooth and defined with line angles that are smooth and well-defined.

III. Operative Environment and Pulp Protection

- A. Optimal rubber dam isolation; field is clean and dry.
- B. All caries are removed.
- C. Base material (if needed) is appropriately placed.
- D. Adjacent contact and tooth structure are undamaged.

Class II Finish

I. Anatomical Form

- A. Restoration restores the harmonious form of the existing tooth (normal anatomy and proper marginal ridges).
- B. Proximal contour returns proper shape and anatomical position.
- C. Adjacent tooth contact area is optimal; will allow waxed floss to pass with proper resistance.

II. Margins

- A. Restoration is on margin, smooth, continuous and without flash or submargination.

III. Finish, Function and Damage

- A. Surface is smooth, free of voids, polished or unpolished; no pitting.
- B. Occlusion has been restored to proper centric occlusion (optimum occlusion).
- C. Hard and soft tissue is not damaged.

Class III Composite Preparation

Third Year Operative Assessment of Competency Criteria Sheet

I. Outline & Extension

- A. Outline and extension is optimal; preparation is appropriately located and conserves tooth structure.
- B. Optimal removal of decalcification and optimal extension into fissures (if necessary).
- C. Bevels are appropriately placed, smooth, clear and well defined.

II. Internal Form

- A. Dentinal walls are properly formed and generally smooth.
- B. The axial wall is neither too shallow nor too deep.
- C. Retention is optimal.

III. Operative Environment and Pulp Protection

- A. Optimal rubber dam isolation; field is clean and dry.
- B. All caries removed.
- C. Adjacent contact and tooth structure are undamaged.

Class III Composite Finish

I. Anatomical Form

- A. Restoration restores the harmonious form of the existing tooth and proper anatomy (ridges and fossae).
- B. Proximal contours return proper shape and anatomical positions, including **all** embrasures.
- C. Adjacent tooth contact area is optimal; will allow waxed floss to pass with proper resistance.

II. Margins

- A. Restoration is sealed.
- B. Restoration is on margin, smooth, continuous and without flash and submargination.

III. Finish, Function & Damage

- A. Surface is smooth, free of voids and displays a high surface luster; no evidence of pitting.
- B. Occlusion has been restored to proper centric occlusion (optimum occlusion).
- C. Hard and soft tissues are not damaged.

RESOURCES

I. Media Resources

A. Printed media

1. Textbooks

Sturdevant, C.M., et al.
The Art and Science of Operative Dentistry, 3rd ed.
C.V. Mosby Co., 2001

Summit, J.B., et al.
Fundamentals of Operative Dentistry: A Contemporary Approach, 3rd Edition,
2006.
Quintessence Publishing Co., Chicago, Illinois.

B. Non-printed media

1. Plastic Viade prepared models.
2. Cavity preparation projects from Operative Dentistry (DEPS 1614; DEPF 2614)

II. Human Resources

Many full- and part-time faculty members in the Department of Restorative Dentistry are involved in, and may be resources for, CLIN 3006 Operative Dentistry Clinic; however, the following faculty, due to their involvement in Pre-clinical Operative coursework, or as bay instructors, should be considered primary resources.

Dr. Richard Bebermeyer
Room 493, Ext. 4286
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Dr. William Tate
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III. Foundational Knowledge

DENF	1508	Oral Histology
DENF	1521	Biochemistry
DENF	1671	Biomaterials I: Direct Restorative Materials
DENF	1541	Physiology I
DENS	1542	Physiology II

IV. Foundational Skills

DENF 1601	Dental Anatomy
DEPF/S 1602-3	Dental Anatomy Lab I, II
DEPS 1614	Operative Dentistry I
DEPF 2614	Operative Dentistry II
DEPS 2615	Inlay/Onlay
DEPF 2907	Complete Dentures
DEPS 2908	Fixed Prosthodontics--FPD
DENF 2962	Pediatric Dentistry I
DENS 2963	Pediatric Dentistry II
DENF 3671	Biomaterials III: Applications to Clinical Dentistry

ACTION PLAN

Students are expected to complete minimal essential clinical operative experiences during the course of normal comprehensive care on assigned patients by the final day of the academic year.

Competency in third year Operative Dentistry may be achieved only by developing clinical skills and knowledge to an ability level that will enable adequately addressing any patient's basic comprehensive dental needs. This level is measured by: 1) the successful completion of the third year Operative Simulation Competency Assessments; 2) the successful completion of the third year Operative Clinical Competency Assessments; and 3) the successful completion of the minimal essential clinical experiences.

In general, only procedures that are performed in the third year Operative Dentistry chairs will be counted for CLIN 3006. Those procedures performed in other areas will count in those other department courses.

I. Third Year Operative Clinical Competency Assessment

General Information

Students will receive notice of the date on which clinical competency assessments will be due. Students must take clinical competencies no later than the due date assigned to avoid penalties. It is strongly encouraged that you attempt your clinical competency examinations as early as possible. You are expected to complete at least one of your competency assessments by the end of the fall semester in order to earn a satisfactory progress report.

Any student not attempting all clinical competency assessments by the third Friday in June, for third-year Operative clinical exams will receive a grade of 50 for the score of that competency exam when it is successfully completed. This score will become the grade of record for that percentage of the student's grade for CLIN 3006 Operative Dentistry as noted below.

Each clinical exam **must** be performed within the time allotted for a regular clinic session. **Time is a component of the examination.** Patients should be out of the student's chair by the time stated in the examination instructions (usually 3.5 hours from the starting time). Students who go over the allotted clinic time will be penalized on the grade for that exam. The penalty is a one-point reduction in the grade for each minute over.

The original (i.e. first) competency assessment score is the grade of record. Each clinical competency assessment must be successfully completed. Any clinical competency assessments that are 'failed', average grade < 3, must be retaken. Completing the failed clinical exam on a second attempt is considered the student's remediation. Should a student fail on the second attempt, didactic review and manikin exercises will be assigned and evaluated prior to a third attempt on a patient. Restorations that are not clinically acceptable, i.e. that are 'failures,' must be remade to a satisfactory level and the student will then receive credit for having performed that restoration. The student will not be able to progress to the fourth year unless **all** third year clinical exams are passed and all minimum essential experiences are completed. Any remake clinical competency assessment, which must be passed, only counts as a "restoration."

A. Components of the Clinical Competency Assessment

1. Class II amalgam restoration (new carious lesion or replacement*) on a patient or

Class II direct posterior composite restoration (new carious lesion preferred or replacement* restoration; an endodontically treated tooth is not acceptable) on a patient

2. Class III composite (new carious lesion or replacement) on a patient
3. Class II **indirect composite** inlay or onlay on a **patient** (new lesion preferred or may replace an existing restoration or change a two surface inlay to a three surface inlay/onlay) **OR** Class II **cast gold** inlay or onlay, two/three surface on **patient or manikin** (inlay/onlay placed on manikin will NOT count toward minimum essential experiences) (the cost of gold for an inlay/onlay done on a manikin is at the student's expense).

* Replacement of present posterior restorations MUST include a minimum of one additional proximal surface (e.g. an occlusal may be replaced becoming MO or DO or MOD; an MO or DO may be replaced becoming an MOD, etc.).

B. Procedural requirements

1. The competency examination must be approved by the faculty member, based on a review of PCUs and experiences completed.
2. The tooth must be approved by the faculty member as satisfactory for a competency exam at the beginning of the procedure.
3. Procedures must be treatment outlined.
4. There must be adjacent tooth interproximal contact with natural tooth structure or a permanent restoration, i.e. no temporary restorations. If the tooth has an "open" interproximal contact it is acceptable for use as a competency if the restoration will establish harmonious and correct interproximal contact **and if** faculty approval is obtained before the student starts the procedure.
5. The tooth must accommodate appropriate rubber dam isolation.
6. Students may not withdraw from a clinical exam after beginning the preparation.
7. The tooth must be evaluated at the preparation stage by at least two Restorative faculty members.
8. The tooth must be evaluated by two Restorative faculty members when the restoration is completed. At the discretion of the faculty member, a pre or post cementation radiograph may be required.

The amalgam, anterior composite and direct posterior composite must each be prepared and restored in one appointment. The preparation and restoration must be graded before dismissal of the patient.

The inlay/onlay restoration will be graded after cementation. The examiners will be checking all criteria for grading in the "Anatomical Form" (anatomy, contour and contact) and "Margins – Finish, Function and Damage" (margins, polish, occlusion and tissue damage) sections of the grade sheets

At the "prior-to-cementation" step, the restoration should be completely finished, including the following:

- a. all margins closed
- b. finished down to tooth structure
- c. occlusion adjusted
- d. well polished

At the post cementation step the restoration should be completely finished including all necessary occlusal adjustments and repolishing.

The student must complete the inlay/onlay restoration within two weeks of the original preparation appointment. Penalties of one point per day will apply for violating this time limit.

The inlay/onlay preparation must be performed, graded and temporized in one clinic session. An impression should be obtained, but, with an explanation to and the permission of the restorative faculty, the student may schedule a patient for an impression at a subsequent appointment. Once the preparation has started, students may not withdraw from the clinical exam.

The seating of the restoration should be accomplished in one appointment. However, should the **student** determine that the restoration is not clinically acceptable, the student may, after discussing the case with the two faculty members grading the restoration, schedule another seating appointment without penalty, provided students do not exceed the two-week time period. The student may perform any preparation alterations, impressions, etc. that he/she deems necessary, with the permission of the faculty. Faculty must give final approval to each step.

II. Simulation Competency Assessment

- A. Amalgam – Class II - prep and restore.
- B. Cast gold – Class II inlay – prep.

III. Minimum Essential Experiences

The following are recommendations for a well rounded clinical experience for the third year. The primary objective is for you to treat YOUR patients in a comprehensive manner. We realize that this may cause a slight variance in the following categories and we will allow for moderate variations in individual categories. However, we do expect a minimum total of 90 PCUs.

		<u>Recommended Minimum PCU Values*</u>
A.	Direct Class II Restorations -	
	1. Amalgam or composite	22
B.	Direct Class III, IV or V Restorations	13
C.	Indirect Class II Restorations	
	1. Cast Gold	12*
	2. Lab processed composite	12*
D.	Additional Procedures as necessary for proper patient care	
	1. Class I or VI	
	2. Build-ups	
	3. other non-specified procedures	
	TOTAL	90

- * See CLIN 3014 for PCU values for direct and indirect restorations.
- * Indirect restorations that are sent to an outside laboratory **MUST** charge an additional fee of \$85 and use code D2963.
- * You may substitute for **one** of the patient care indirect restorations by completing a gold onlay (tooth #14) on a manikin. The substitution on a manikin does NOT count toward minimum unit values.
- * If you choose to complete your second indirect restoration on a manikin you must fabricate the restoration yourself and are responsible for the cost of the additional restorative material.

The category recommendations listed above recommend approximately two-thirds of the minimal essential experiences necessary to complete this course. Completing the minimum amount will result in a minimal passing productivity score. During the course of treating your patients in a comprehensive manner we expect that you will complete many more operative procedures than the minimum. To reward those of you who complete more than the minimum, additional productivity points will be rewarded as described in the Evaluation Methods section. All PCUs are carried over into the fourth year (as of this date), and are credited in CLIN 4006 Operative Dentistry.

IV. Course Grading

Clinical Competency Assessment	50%
Simulation Competency Assessment	10%
Productivity	15%
Daily Grading	15%
Clinical judgment/professionalism	10%

V. Course Completion

All clinical competency assessments, bench exams, and minimum essential experiences for the course must be successfully completed by the final day of the academic year (summer session). If they are not completed by this date, the report of the student to the Third Year Evaluation and Promotion Committee will be an IU (incomplete unsatisfactory). The final grade for the course will be reduced by one point for each week of the fall clinic that passes before successful completion. Additionally, students who have not completed all minimum essential Restorative (Operative AND Prosthodontic) experiences will not be recommended for promotion to the Fourth Year until these minimums have been met.

VI. Operative Dentistry rules for patient treatment include the following:

- A. Be on time for all clinic sessions and patient appointments and adhere to the time allotted for the clinic period. This is a courtesy for patients and a rule for our clinics.
- B. Carefully evaluate and record a patient's presenting condition and treatment. Keep concise detailed progress notes. Keep in mind that a patient's record exists to record the course of their evaluation, treatment, changes in condition, clinical observations and results or responses to therapy. It must contain sufficient information to identify the patient, support the diagnosis, justify any treatment and accurately document the results. The patient's condition should follow a progression chronicled by neat, well-organized, legible progress notes and charting. Refer to the Clinic Manual for more information regarding the patient's record and record entries.
- C. Spend an adequate amount of time on pre-op preparation. Be sure all pre-op requirements have been completed prior to appointing the patient. For example, have mounted study models for performing inlay/onlay restorations. Have available at the seating appointment the full arch model with removable die trimmed appropriately, a solid pour of the prepared quadrant, and for gold the polish should be through the burlew or rubber cup stage.

Review the procedure you will be performing prior to the appointment. Understand the procedure, appropriate instruments, and the composition and application of all of the dental materials to be used in the procedure(s). Also, review your understanding of why the tooth (teeth) needs dental treatment prior to the appointment, i.e. what is the 'diagnosis?' Failure to be prepared may be grounds for suspension from clinic.

- D. Make certain that all clinical instruments, handpieces and burs needed are available and are in good working order before seating the patient.
- E. Have the electronic patient record and all paperwork ready at the beginning of the appointment before seeking a faculty member for the start check.
- F. Have the patient's X-rays available for reference and guidance before seeking a faculty member for the start check.
- G. Clinically review the diagnosis and proposed treatment before you actually begin the treatment.
- H. Follow all infection control procedures.
- I. Utilize Rubber Dam isolation for ALL operative procedures.
- J. For purposes of continuity and quality of patient care, students should remain under the supervision of the faculty member who approved the start of the clinical procedure for the remainder of that procedure or until the end of that clinical session. Effectively communicate with your patient and the faculty and staff to avoid needless misunderstanding and confusion.
- K. Manage your patient with compassion, concern and respect. Be considerate but firm with your patient especially when making appointments, quoting fees, explaining the diagnosis and treatment options or giving special instructions. Avoid common errors in patient management such as the use of words with negative connotations, the use of jargon or slang, not practicing proper personal hygiene, leaving the light in the patient's face, not providing a restroom break for the patient and not varying the chair/headrest position of the patient for long periods of time.
- L. For the **indirect restorations** (either cast gold or resin), students must prepare the tooth for the indirect restoration and **make an acceptable provisional restoration prior to making the impression**. Faculty must check and give approvals for each step before students are allowed to proceed to the next step. For indirect restorations, mounted models are required for cases involving cuspal coverage, more than one inlay/onlay, or with unusual occlusion. See your faculty member for clarification in each case.
- M. For the indirect restorations, students must do their own lab work (or seek supervision and help from UTDB faculty and staff). Under no circumstances can students have "outside" lab technicians or dental professionals do the student's lab work (including mounting of casts, trimming of dies, fabrication of inlay/onlays, etc).
- N. For inlay/onlay and indirect composite restorations, there are steps requiring faculty approvals when performing the restoration. The steps are: preparation, impression, full-arch mounted working models with removable dies, wax patterns and gold requisition, the cast restoration on the working model at the seating appointment, and try-in and delivery of the restoration. Students must seek faculty approval and evaluation for each of these steps.
- O. **Cast gold inlays/onlays and indirect posterior composite restorations must be cemented with the rubber dam in place**. This will help prevent swallowing or aspirating the restoration, and facilitates moisture control in the operative field.

EVALUATION METHODS

Third Year students must meet clinical acceptability on operative procedures performed on a daily basis. At each clinical session, students are evaluated for performance of procedures, knowledge, infection control, record keeping, professionalism, and overall management of the patient. Third Year students must successfully complete the Third Year Operative Clinical Competency Assessments.

During the course of the academic year you are expected to treat your patients in a timely, comprehensive manner. As such, your progress is monitored on a regular basis. The following are minimum goals for obtaining a satisfactory progress report at various points throughout the year:

October 15 - 15 PCUs completed
December 15 - 30 PCUs – 1 Competency Assessment completed
March 15 - 55 PCUs – 2 Competency Assessments completed
May 5 - 75 PCUs – 2 Competency Assessments completed
July 15 - 90 PCUs – 3 Competency Assessments completed

Criteria used to determine your final grade for this course are listed below:

- A. Third Year Operative Clinical Competency Assessments grading criteria **(50% of total)**
1.
 - a. The amalgam or direct posterior composite restoration counts as 20% of the total course grade.
 - b. The Class III direct composite restoration counts as 10% of your total grade.
 - c. The inlay/onlay restoration counts as 20% of your total grade.
 2. Each restoration must be evaluated by two examiners. Every evaluation procedural category will be graded from 1 to 5 (consistent with the WREB), with 1 representing the lowest possible score and 5 the highest achievable score.
 3. Evaluation categories and percent weight of each
 - a. Preparation
 - i. outline and extension (20%)
 - ii. internal form (20%)
 - iii. operative environment (10%)
 - b. Restoration
 - i. anatomical form (15%)
 - ii. margins - finish, function and damage (15%)
 - iii. finish, function and damage (10%)
 - c. Other
 - i. professionalism/conduct/technical skills (5% for each of the two appointments for indirect, or 10% for the one-appointment direct restoration competencies)

Earned points for the Third Year Operative Clinical Examination are weighted using the following scale:

Earned Point	WREB Point Equivalent	Adjusted Score (to 100)
5	5	100
4	4.25	85
3	3.5	70
2	2.33	46.6
1	1.17	23.4

To successfully pass each of the third year Third Year Operative Clinical Assessment you must achieve a total adjusted score of 70 or above on each exam.

B. Daily clinical evaluation grading areas with final grade percentages (15% of total)

1. Daily procedure grades
2. Daily clinical performance grades
3. Clinical procedure (preparation):

Criteria:

- a. The adjacent tooth has not been damaged to the extent that a restoration is required to restore the tooth to its previous contour.
- b. Outline and extension:
 - i. There is appropriate extension after consideration of tooth morphology or position and for caries removal: occlusal/gingival/ buccal/lingual.
 - ii. Appropriate contacts are broken and proper amount of separation from adjacent tooth structure is present.
 - iii. Preparation is terminated on sound (tooth) structure.
 - iv. The outline form is regular and smooth.
- c. Internal form:
 - i. Floors or walls are regular.
 - ii. Internal line angles are well defined and terminate in dentin.
 - iii. Defective fissures are incorporated.
 - iv. Pulpal floor is 0.2 mm into dentin.
 - v. Retention is adequate.
 - vi. Enamel is not undermined.

Grades:

- 5 (Excellent)
- 4 (Good)
- 3 (Acceptable)
- 2 (Poor/Failure)

1 (Unacceptable/Failure)

4. Finished restoration:

Criteria:

- a. Contact is proper (not open or impassable).
- b. Anatomical form is proper and harmonious with tooth structure.
- c. Contour is same as natural tooth.
- d. Proximal contact area is in normal anatomical position and is shaped properly.
- e. Marginal ridge is restored to its original contour.
- f. All embrasures are properly restored (occlusal, buccal, lingual and gingival).
- g. Restoration is smooth and without voids.
- h. Margins are smooth, continuous, have no flash or submargination and are correctly sealed.
- i. Occlusion is properly restored.
- j. Adjacent soft tissue is not damaged.

Grades:

- 5 (Excellent)
- 4 (Good)
- 3 (Acceptable)
- 2 (Poor/Failure)
- 1 (Unacceptable)

C. Productivity Component **(15%)**

A minimum of **90** PCUs is required to obtain a productivity score of 70. For every 3 additional PCUs earned, the productivity score will increase by 2 points. For example 93 PCUs will earn a productivity score of 72; 105 PCUs will earn a productivity score of 80, etc.

D. Simulation Competency Assessment **(10%)**

- 1. Amalgam
- 2. Cast Gold Inlay preparation

E. Clinical judgment/professionalism: **(10% of total)**

Determined by faculty conference