

NBDE Standard Setting

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NBDE Purpose and Interpretation

- The purpose of the National Board Dental Examinations is to assist state boards in determining the qualifications of individuals seeking licensure to practice dentistry.
- The NBDE is used to determine whether the candidate possesses the minimally acceptable level of knowledge, cognitive skills, and ability that is necessary for the safe, entry-level general practice of dentistry:
 - Part I: Anatomic sciences, biochemistry-physiology, microbiology-pathology, and dental anatomy & occlusion.
 - Part II: Dental and clinical dental sciences.

Standard Setting

- The National Board Examinations are criterion-referenced and not norm-referenced examinations.
- Subject matter experts identify standards (pass/fail points) following established procedures and criteria that reference specific skill level requirements, not by the process sometimes known as “grading on a curve.”
 - All candidates who demonstrate the necessary skill level through their examination performance will pass the examination (it is NOT the case that scoring is established to fail a certain percentage of examinees).
- The standard for each examination program is the same for all examination forms administered to candidates. This occurs through the use of equating procedures that control for subtle differences in difficulty in test items across examination forms.
- The standard for each examination is determined through a process called “standard setting”.

Standard Setting: Overview and Purpose

- “Standard setting” refers to the structured process by which subject matter experts (SMEs) recommend a performance standard for an examination.
- The Joint Commission periodically conducts standard setting activities for the NBDE and NBDHE. The purpose of these activities is to establish a recommendation for the Joint Commission regarding the minimum score that a candidate should obtain in order to pass each examination.
- The Joint Commission conducts separate standard setting activities for the NBDE Part I, NBDE Part II and NBDHE.

Standard Setting: Overview and Purpose

- The current performance standards for the NBDE Part I and NBDE Part II were set in 2007 and 2008, respectively.
- In late 2014, standard setting activities were conducted for purposes of updating the minimum passing scores for the NBDE Parts I and II, respectively.
- The NBDE Part I standard setting activities were held on October 27-28, 2014. The NBDE Part II standard setting activities were held on November 3-4, 2014. Both were conducted at the ADA offices in Chicago, IL.
- The 2014 standard setting activities for NBDE Parts I and II were facilitated by Dr. Gregory Cizek, a nationally recognized expert in standard setting who has authored several books on the subject (Cizek 2001, 2012; Cizek & Bunch, 2007).

Standard Setting Panel Membership

- The NBDE Part I and Part II standard setting panels consisted of 10 and 12 members, respectively.
- The panels were composed of dental Subject Matter Experts (SMEs).
- The panels were selected to be broadly representative and aligned with the purpose of the examinations:
 - Practitioners
 - Dental school faculty
 - Joint Commission members
 - Members of state boards
 - Dental school deans and associate deans
 - Current and former NBDE Test Construction Committee members
 - Geographically representative
 - Gender balanced

Bookmark Standard Setting Method

- An established standard setting method called the “Bookmark” method was used for the NBDE Part I and NBDE Part II standard setting activities.
- For the Bookmark method, panelists are asked to review a representative booklet of test items that have been sorted in ascending order of difficulty (i.e., easiest to hardest). The booklet of test items is called an “ordered item booklet” (OIB).
- After reviewing the OIB, each panelist places a “bookmark” on the page containing the last item he or she believes a “just qualified candidate” would have at least a two thirds (67%) chance of answering correctly.
- The panel’s recommended performance standard for the examination is derived from the median of the bookmarked pages, across panelists.

The Just Qualified Candidate (JQC)

- The key referent in the bookmark procedure is the Just Qualified Candidate (JQC) – a hypothetical examinee whose knowledge, skills and abilities (KSAs) represent the lowest level that would still be considered acceptable to pass the examination.
- For the NBDE Part I, the JQC was defined as follows:

“The JQC is a candidate, currently pursuing an approved training program in dentistry, who possesses the minimally acceptable level of knowledge, cognitive skills, and ability that is necessary to apply the biomedical, dental, and clinical dental sciences for the safe, entry-level general practice of dentistry.”
- For the NBDE Part II, the JQC was defined as follows:

“The JQC is a candidate, currently pursuing an approved training program in dentistry, who possesses the minimally acceptable level of knowledge, cognitive skills, and ability in the dental and clinical dental sciences – including the areas of professional ethics and patient management – that is necessary for the safe, entry-level general practice of dentistry.”

Standard Setting Process

- Prior to beginning the bookmark procedure, panelists engaged in small-group and whole-group discussions regarding the characteristics of the JQC. During these discussions, panelists described specific KSAs they believed the JQC would and would not possess.
- To ensure that panelists were familiar with the content and difficulty of the examination, panelists were administered a “mini form” of the test that was representative of the actual examination with respect to content, difficulty, and item formats. Upon completion, they were provided with an answer key so they could self-score their mini form.
- To ensure that the mechanics of the bookmark process were well understood by all, panelists also participated in a practice bookmarking round which was conducted using a “practice” OIB consisting of 12 test items.
- Staff were available throughout the activity to provide assistance and any necessary information and clarification concerning the NBDE program.

Bookmark Standard Setting Method

- Three rounds of bookmarking were conducted. In each round, each panelist placed his or her bookmark on the page containing the last item he or she believed a “just qualified candidate” would have at least a two thirds (67%) chance of answering correctly.
- After each round, standard setting panelists were provided with the following information:
 - Information about how their bookmarked page compared to the bookmarked pages of other panelists (i.e., “normative information”).
 - Information about the prospective consequences of their bookmarked pages on the fail rate for the examination (i.e., “impact information”).
- After the second round, panelists were also provided with empirical information about the difficulty of the test items in the OIB.

Bookmark Standard Setting Method

- After each round, panelists discussed their individual bookmark placements as a group and shared their thoughts and concerns.
- The panel's final recommended performance standard for each examination was based on the median of the bookmarked pages (across panelists) from the third bookmarking round.

Panelist Feedback

- At five points during the standard setting activities, panelists were given an opportunity to provide feedback about the standard setting process.
- The feedback was collected through a series of evaluative questionnaires developed by Dr. Cizek.
- Participants' evaluations of all aspects of the process were uniformly strong and supportive.
- Each panelist indicated that they supported the final group-recommended performance standard.

Panelist Feedback: NBDE Part I

- Panelist feedback from the final evaluative questionnaire: NBDE Part I

Survey Item Number and Statement	Mean Rating
1. The item difficulty information provided for generating the Round 3 ratings was helpful.	4.3
2. The instructions regarding how to use the item difficulty information were clear.	4.4
3. The discussion of the Round 2 Bookmark placements and instructions helped me understand what I needed to do to complete Round 3.	4.5
4. I am confident in my Round 3 Bookmark placement.	4.5
5. I had the opportunity to ask questions while working on my final recommendations.	5.0
6. The facilitators helped to answer questions while working on my final recommendations.	4.8
7. The timing and pace of the final round were appropriate.	4.7
8. Overall, the facilities and food service helped create a good working environment.	4.8
9. Overall, the materials were clear and helpful.	4.6

Key: Values are on a five-point scale, ranging from 1=Strongly Disagree to 5=Strongly Agree; NR = no response. All table entries are based on $n=10$ responses.

Panelist Feedback: NBDE Part I

- Panelist feedback from the final evaluative questionnaire: NBDE Part I

Survey Item Number and Statement	Mean Rating
10. Overall, the training in the standard setting purpose and methods was clear.	4.5
11. Overall, I am confident that I was able to apply the standard setting method appropriately.	4.6
12. Overall, the standard setting procedures allowed me to use my experience and expertise to recommend cut score for the NBDE Part I.	4.7
13. Overall, the facilitators helped to ensure that everyone was able to contribute to the group discussions and that no one unfairly dominated the discussions.	4.5
14. Overall, I was able to understand and use the information provided (e.g., other panelists' ratings, item difficulty information).	4.5
15. Overall, I support the final group-recommended cut score as fairly representing the appropriate performance standard for the NBDE Part I.	4.6

Key: Values are on a five-point scale, ranging from 1=Strongly Disagree to 5=Strongly Agree; NR = no response. All table entries are based on $n=10$ responses.

Panelist Feedback: NBDE Part II

- Panelist feedback from the final evaluative questionnaire: NBDE Part II

Survey Item Number and Statement	Mean Rating
1. The item difficulty information provided for generating the Round 3 ratings was helpful.	4.5
2. The instructions regarding how to use the item difficulty information were clear.	4.7
3. The discussion of the Round 2 Bookmark placements and instructions helped me understand what I needed to do to complete Round 3.	4.7
4. I am confident in my Round 3 Bookmark placement.	4.6
5. I had the opportunity to ask questions while working on my final recommendations.	4.9
6. The facilitators helped to answer questions while working on my final recommendations.	4.9
7. The timing and pace of the final round were appropriate.	4.5
8. Overall, the facilities and food service helped create a good working environment.	4.8
9. Overall, the materials were clear and helpful.	4.9

Key: Values are on a five-point scale, ranging from 1=Strongly Disagree to 5=Strongly Agree; NR = no response. All table entries are based on $n=10$ responses.

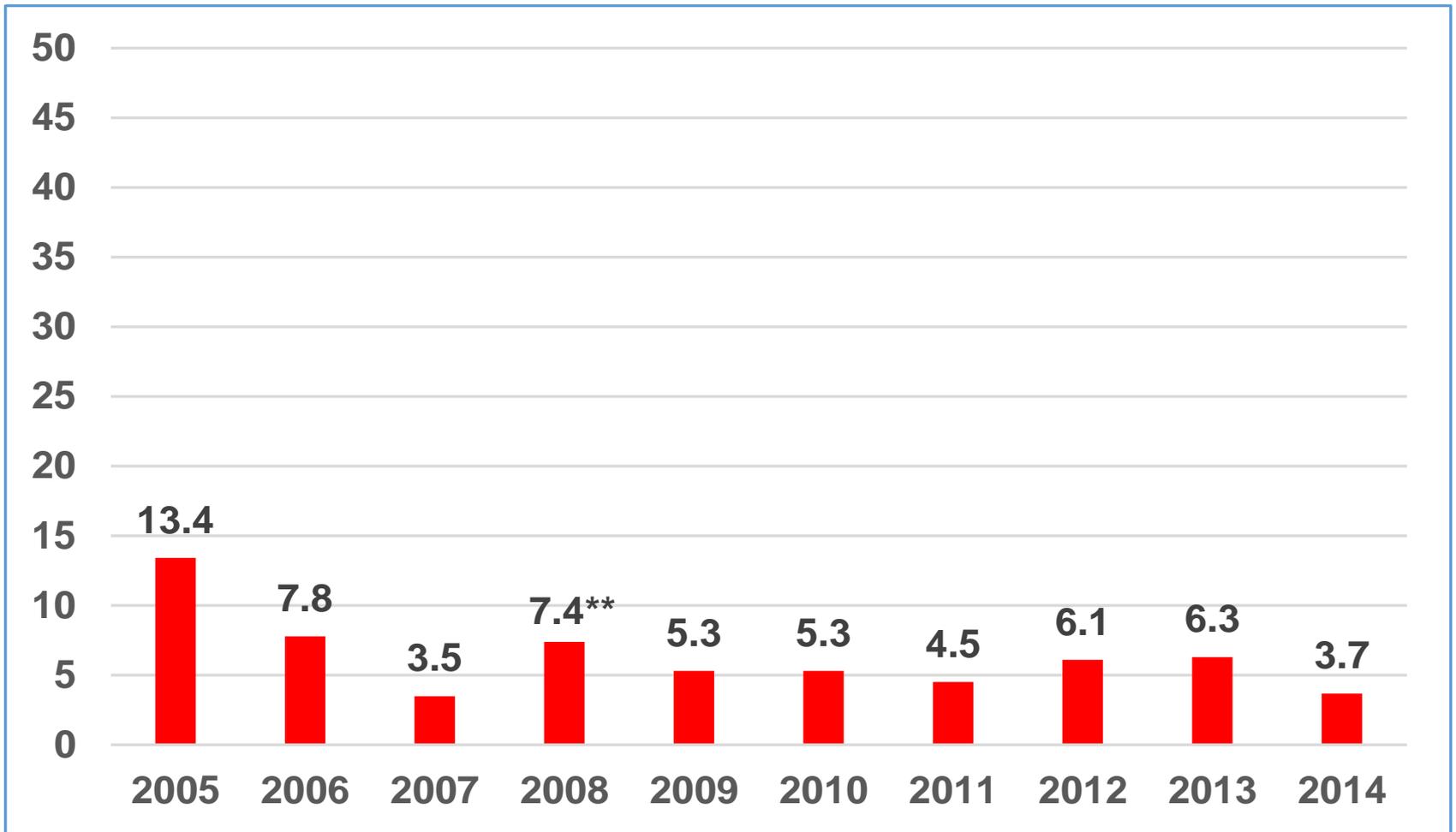
Panelist Feedback: NBDE Part II

- Panelist feedback from the final evaluative questionnaire: NBDE Part II

Survey Item Number and Statement	Mean Rating
10. Overall, the training in the standard setting purpose and methods was clear.	4.8
11. Overall, I am confident that I was able to apply the standard setting method appropriately.	4.8
12. Overall, the standard setting procedures allowed me to use my experience and expertise to recommend cut score for the NBDE Part II.	4.8
13. Overall, the facilitators helped to ensure that everyone was able to contribute to the group discussions and that no one unfairly dominated the discussions.	4.9
14. Overall, I was able to understand and use the information provided (e.g., other panelists' ratings, item difficulty information).	4.8
15. Overall, I support the final group-recommended cut score as fairly representing the appropriate performance standard for the NBDE Part II.	4.9

Key: Values are on a five-point scale, ranging from 1=Strongly Disagree to 5=Strongly Agree; NR = no response. All table entries are based on $n=12$ responses.

NBDE Part I Failure Rates

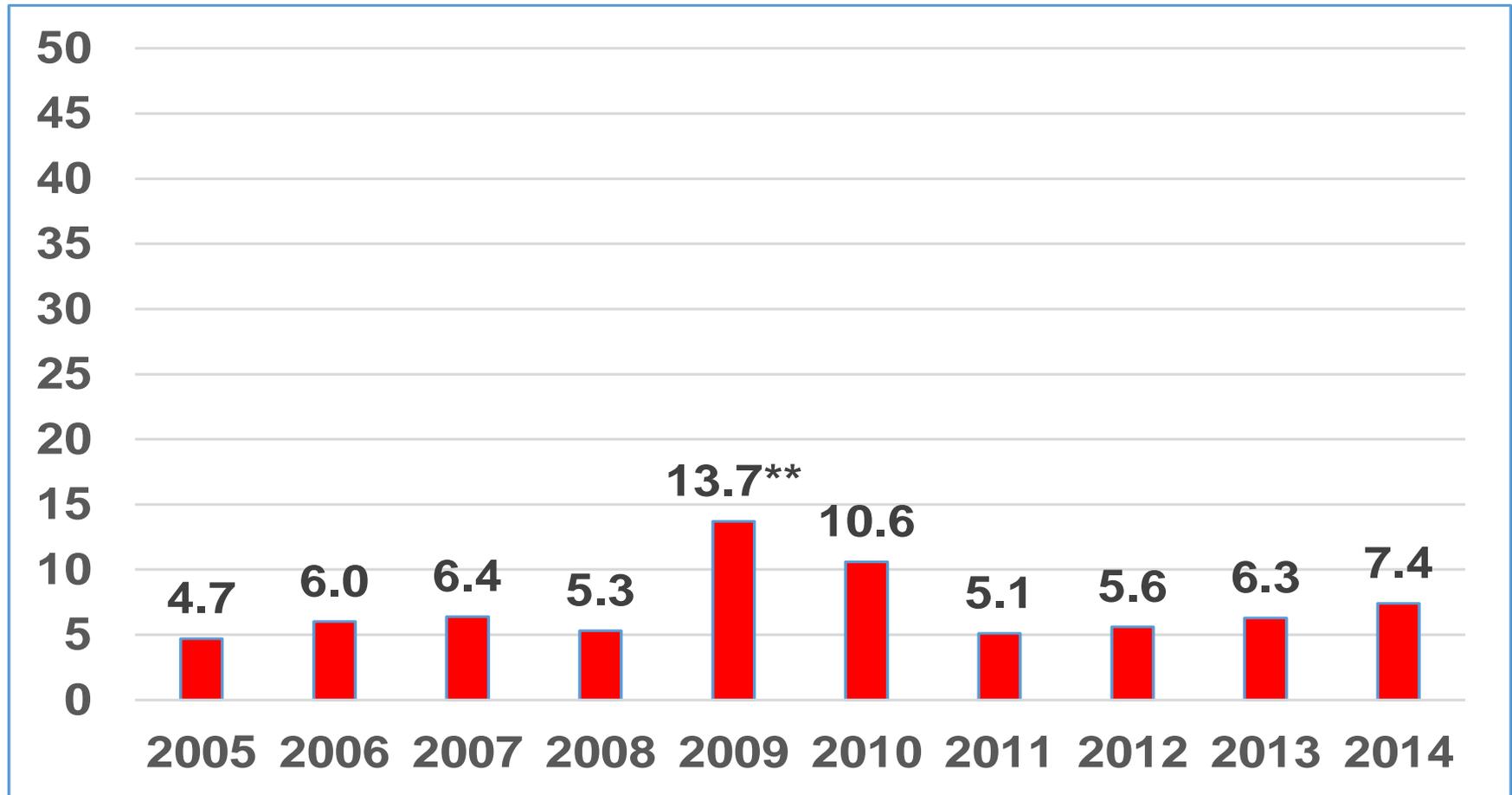


** A new standard was introduced this year, based on updated standard setting activities.

Standard Setting Results: NBDE Part I

- The 2014 NBDE Part I standard setting panel provided a recommendation to the Joint Commission concerning the minimum passing score for the NBDE Part I. The recommendation represented an **increase** in the performance standard for the NBDE Part I.
- In 2013, the current operational performance standard resulted in a failure rate of 6.3% for first-time test-takers from accredited dental programs. **If the panel's recommendation is applied to the same population, the resulting failure rate is 10.1%.**
- The recommendation from the 2014 NBDE Part I standard setting panel was approved by the Joint Commission in 2015. **The new standard will be implemented no sooner than April 2016.**

NBDE Part II Failure Rates



** A new standard was introduced this year, based on updated standard setting activities.

Standard Setting Results: NBDE Part II

- The 2014 NBDE Part II standard setting panel provided a recommendation for the Joint Commission concerning the minimum passing score for the NBDE Part II. The recommendation represented an **increase** in the performance standard for the NBDE Part II.
- **In 2013, the current operational performance standard resulted in a failure rate of 6.3% for first-time test-takers from accredited dental programs. If the panel's recommendation is applied to the same population, the resulting failure rate is 8.6%.**
- The recommendation from the 2014 NBDE Part II standard setting panel was approved by the Joint Commission in 2015. **The new standard will be implemented no sooner than April 2016.**

Standard Setting

Q & A

Thank you

Appendix A

College of Dentistry Curriculum Committee Syllabus Evaluation Form

Course number __DEN 7017__ Course title: Prof. in Pt. Care / Practice Management

Faculty reviewer: _____ Date: 11/2015_____

Criteria	Evident	Not Evident
<p>Educational Goals and Objectives</p> <p>Is the educational goal consistent with the overall educational philosophy and stated in relation to the college's competency document?</p> <p>Are the educational goals and objectives clearly stated?</p> <p>Are the course objectives and content thorough and appropriate for predoctoral students?</p> <p>Does the course provide learning experiences for students to achieve the course goals, objectives and development of competency?</p> <p>Comments: BLS, HIPAA, IMEP all relevant. The course goals seem very thorough and clearly stated. Not much room for ambiguity.</p>	<p>XXX</p> <p>XXX</p> <p>XXX</p> <p>XXXX</p>	<p>X</p> <p>X</p> <p>X</p>
<p>Teaching Methods</p> <p>Do the teaching methods support active learning, evidence-based practice, multidisciplinary integration, and the development of critical thinking skills or reflective judgment?</p> <p>How many hours has the course decreased scheduled lecture hours in the past three years?</p> <p>Comments: Multidisciplinary integration as much as an ethics class can be. Integration of current BLS, HIPAA, and IMEP standards Course objectives are not clearly defined in course objective section, instead this area is used to describe the objectives of the TEAM program.</p>	<p>XXX</p> <p>XXX</p> <p>XXXX</p> <p>XX</p> <p>0</p>	<p>X</p> <p>X</p> <p>X</p>
<p>Course Content:</p> <p>Does the course incorporate emerging information?</p> <p>Does the course content have excessive overlap with other courses in the curriculum such that time could be used in other ways?</p> <p>Comments: IMEP good integration of previous didactic knowledge in introduction to clinical care. The syllabus mentions using evidence based protocols, however, it is not evident how up to date these protocols are.</p>	<p>XXXX</p>	<p>XXX</p>

<p>Methods of Evaluation</p> <p>Are students evaluated based on the objectives, and are these evaluations a fair measure of student achievement in the course?</p> <p>What are the methods of evaluation? (e.g. written exams (mcq, short answer, essay), practical exams (psychomotor), oral, standardized patients, OSCE, reflection papers and others)?</p> <p>Eval=participation in all activities</p> <p>Quizzes, Skills Evaluation Assessment</p> <p>Certification exams, daily check once in clinic, chart audits, CEUs?</p> <p>Do students conduct self-evaluation? unknown</p> <p>Is the grading criteria clear?</p> <p>Does the syllabus describe how remediation would be accomplished if the student does not pass a test or the course overall? No – just consequences</p> <p>Comments:</p> <p>Not sure if I am missing it, but there seems to not be a point value assigned to each activity, only for failure and variances. Is overall participation 100 pts, not mot broken out except when not completed? Also, remediation process is not spelled out.</p> <p>Remediation is designed on a case by case basis</p> <p>The evaluation section lists what is expected, however, it is not clear how students are evaluated in chart audits and progress in professionalism and patient management.</p>	<p>XXX</p> <p>XX</p> <p>X</p> <p>X</p>	<p>XX</p> <p>XXX</p> <p>XXX</p>
<p>Readings and Assignments:</p> <p>Are course readings and assignments thorough and appropriate?</p> <p>Comments:</p>	<p>XXX</p>	<p>X</p>
<p>Criteria</p>	<p>Yes</p>	<p>No</p>
<p>Timing/Sequencing: Is the course scheduled at the appropriate time in the curriculum?</p> <p>Comments:</p>	<p>XXXX</p>	
<p>Credit Hours</p> <p>Does credit assignment for the course reflect the instructional hours for the course?</p> <p>Does the credit assignment for the course reflect appropriate weight within the curriculum?</p> <p>Comments:</p>	<p>XXX</p> <p>XXX</p>	<p>X</p> <p>X</p>

Summary: Strengths of the course

Great comprehensive catch-all course for clinical entry – lots of hands on learning and practical activities.

Teaches the students about ethics and the skills necessary to have a successful practice.

The new course director is very thorough and clearly outlines the model for success in this course

The course provides necessary training and holds the students to a standard of professionalism and ethical conduct.

Summary: Weaknesses of the course

Unsure of point assignment for each portion of class.

None.

The expectations for chart audit and professionalism and patient management assessments are not clearly defined

Recommendations (continue on separate sheet, if necessary)

If a student fails the Global Assessment of Competency, they should not fail the course. Instead, they should be given additional time to able to develop the skills outlined by the competency assessment.

The course objective section should include more detail.

<p>Methods of Evaluation</p> <p>Are students evaluated based on the objectives, and are these evaluations a fair measure of student achievement in the course?</p> <p>What are the methods of evaluation? (e.g. written exams (mcq, short answer, essay), practical exams (psychomotor), oral, standardized patients, OSCE, reflection papers and others)?</p> <p>Exam, extra points for activities</p> <p>Multiple Choice Exam, Avatar Patient Simulation</p> <p>Written examinations and an Avatar patient simulation</p> <p>Do students conduct self-evaluation? unknown</p> <p>Is the grading criteria clear?</p> <p>Does the syllabus describe how remediation would be accomplished if the student does not pass a test or the course overall? No – just consequences</p> <p>Comments:</p> <p>Lecture exams with built in competency questions and "Avatar" learning module.</p>	<p>XXXX</p> <p>X</p> <p>XXXX</p> <p>XXXX</p>	<p>XX</p>
<p>Readings and Assignments:</p> <p>Are course readings and assignments thorough and appropriate?</p> <p>Comments:</p>	<p>XXXX</p>	
<p>Criteria</p>	<p>Yes</p>	<p>No</p>
<p>Timing/Sequencing: Is the course scheduled at the appropriate time in the curriculum?</p> <p>Comments:</p> <p>The is the last lectured Endo course which serves to reinforce previous courses for clinical use.</p>	<p>XXXX</p>	
<p>Credit Hours</p> <p>Does credit assignment for the course reflect the instructional hours for the course?</p> <p>Does the credit assignment for the course reflect appropriate weight within the curriculum?</p> <p>Comments:</p> <p>The course is important for students to be able to understand and practice the basic endodontic procedures. Therefore, the credit assignment should also be greater.</p>	<p>XXX</p> <p>XXX</p>	<p>X</p>

Summary: Strengths of the course

Great premise – using EBD +TBL to incorporate important principles into comprehensive care enco at core.

Use of patient simulator

Evidence based component, case-based scenarios with automated response system for student participation, and the simulated emergency patient

Summary: Weaknesses of the course

Evaluation is only 2 tests – other activities do not have apparent assignd values – only extra pts. And, is the value of these experiences diminished in students' eyes?

None

I remember the avatar learning exercise as being more of a burden than an actual worthwhile learning experience. Could be replaced with more team based learning.

Recommendations (continue on separate sheet, if necessary)

The remediation for the competency portion of the course should be altered in a way that allows the student to understand why they misunderstood a particular topic. A two page paper does not necessarily mean the student understood and learned the topic to a satisfactory level.

Appendix A

College of Dentistry Curriculum Committee Syllabus Evaluation Form

Course number DEN 7319 Course title: Dental Care for the Geriatric Patient

Faculty reviewer: [REDACTED] Date: 11/2015

Criteria	Evident	Not Evident
<p>Educational Goals and Objectives</p> <p>Is the educational goal consistent with the overall educational philosophy and stated in relation to the college's competency document?</p> <p>Are the educational goals and objectives clearly stated?</p> <p>Are the course objectives and content thorough and appropriate for predoctoral students?</p> <p>Does the course provide learning experiences for students to achieve the course goals, objectives and development of competency?</p> <p>Comments: This course is well established but is relevant to the changing information. Very clearly stated goals and objectives.</p>	<p>XXXX X</p> <p>XXXX X</p> <p>XXXX X</p> <p>XXXX X</p> <p>XXXX X</p>	
<p>Teaching Methods</p> <p>Do the teaching methods support active learning, evidence-based practice, multidisciplinary integration, and the development of critical thinking skills or reflective judgment?</p> <p>How many hours has the course decreased scheduled lecture hours in the past three years?</p> <p>Comments: Not really sure how you could make this an active learning environment unless there is mores case based or live patient interviews and exams presented in the course. The evaluation methodology is not clearly described in the syllabus. The case selection criteria for evaluation has not been described. Mainly a lecture course. Some case-based information. Case base discussion likely in podcasts. I was not able to view the podcasts as only audio was funtional. It was not clear if media site recordings were available.</p>	<p>XX</p> <p>XXXX XXXX XX 0, 0, 0</p>	<p>XXX</p> <p>X</p> <p>XXX</p>
<p>Course Content:</p> <p>Does the course incorporate emerging information?</p> <p>Does the course content have excessive overlap with other courses in the curriculum such that time could be used in other ways?</p> <p>Comments: Like so many other courses here at UFCD, the upper echelon courses seem to combine the formative processes of anatomy, physiology and pharmacology and put them together into a real patient scenario. Websites provided in the documents section for updated information in the subject area.</p>	<p>XXXX X</p>	<p>X XXX</p>

<p>For the most part there is some overlap with previous courses on pharmacology and pathology. In the future I would strongly consider integrating this material in other courses.</p> <p>Uncertain</p>		
<p>Methods of Evaluation</p> <p>Are students evaluated based on the objectives, and are these evaluations a fair measure of student achievement in the course?</p> <p>What are the methods of evaluation? (e.g. written exams (mcq, short answer, essay), practical exams (psychomotor), oral, standardized patients, OSCE, reflection papers and others)?</p> <p>@ exams: 1 Mid term of MCQ and short answer and a final that requires them to write a medical consult</p> <p>50% is from a quiz. The other 50% is not specified as to whether the cases are given as an exam or not.</p> <p>written exams</p> <p>Do students conduct self-evaluation?</p> <p>Is the grading criteria clear?</p> <p>Does the syllabus describe how remediation would be accomplished if the student does not pass a test or the course overall?</p> <p>Comments:</p> <p>The final exam part of the grade needs to be clarified</p>	<p>XXX</p> <p>Mcq</p> <p>XXX</p> <p>XXXX</p> <p>X</p> <p>XXXX</p> <p>X</p>	<p>X</p> <p>XXXX</p> <p>X</p>
<p>Readings and Assignments:</p> <p>Are course readings and assignments thorough and appropriate?</p> <p>Comments:</p> <p>Listed on schedule</p>	<p>XXXX</p> <p>X</p>	
<p>Criteria</p>	<p>Yes</p>	<p>No</p>
<p>Timing/Sequencing: Is the course scheduled at the appropriate time in the curriculum?</p> <p>Comments: Should be earlier.</p>	<p>XXXX</p>	<p>X</p>
<p>Credit Hours</p> <p>Does credit assignment for the course reflect the instructional hours for the course?</p> <p>Does the credit assignment for the course reflect appropriate weight within the curriculum?</p> <p>Comments:</p> <p>9 lectures - 1 credit?</p>	<p>XXXX</p> <p>X</p> <p>XXXX</p>	

Summary: Strengths of the course

Well established curriculum. Taught by an experienced practitioner.

Morphs formative courses into real patient scenarios

Very well organized objectives and goals

Thorough coverage of the topic.

Relevant focus

Summary: Weaknesses of the course

Would like to see inclusion of any current literature that is available

Evaluation needs to be clarified

Recommendations (continue on separate sheet, if necessary)

See above

Methods of evaluation should be described better.

Look closely at overlap with other courses and consider integrating into these courses earlier in the curriculum.

Students should be able to review the lectures if slides or materials are projected.

<p>Methods of Evaluation</p> <p>Are students evaluated based on the objectives, and are these evaluations a fair measure of student achievement in the course?</p> <p>What are the methods of evaluation? (e.g. written exams (mcq, short answer, essay), practical exams (psychomotor), oral, standardized patients, OSCE, reflection papers and others)?</p> <p>Quizzes and exams written exams written exams Exams</p> <p>Do students conduct self-evaluation?</p> <p>Is the grading criteria clear?</p> <p>Does the syllabus describe how remediation would be accomplished if the student does not pass a test or the course overall?</p> <p>Comments:</p>	<p>XXXX X</p> <p>Mcq</p> <p>XXXXX X</p> <p>XXXXX X</p> <p>XXXXX X</p>	<p>XXXX X</p>
<p>Readings and Assignments:</p> <p>Are course readings and assignments thorough and appropriate?</p> <p>Comments:</p>	<p>XXXX</p>	
<p>Criteria</p>	<p>Yes</p>	<p>No</p>
<p>Timing/Sequencing: Is the course scheduled at the appropriate time in the curriculum?</p> <p>Comments: Students have just finished 7441 and at least 1 semester rotation in 7805L Should be earlier.</p>	<p>XXXXX X</p>	
<p>Credit Hours</p> <p>Does credit assignment for the course reflect the instructional hours for the course?</p> <p>Does the credit assignment for the course reflect appropriate weight within the curriculum?</p> <p>Comments:</p>	<p>XXXXX X</p> <p>XXXXX X</p>	

Summary: Strengths of the course

Varied lecturers who are experts in their fields

Thorough coverage of the topic.

Very well describes course goals and states the objectives the students are required to know

Faculty presenters

Summary: Weaknesses of the course

Need to see more evidence of evidence based literature

No active learning methodologies evident

Recommendations (continue on separate sheet, if necessary)

See above comment

Incorporate active learning if not already in place.

Lab sessions could be better clarified.