The College of Dentistry curriculum is based on four 40-week academic years of instruction. Each year consists of 40 weeks of academic instruction.

The first year consists of 47 semester credit hours and includes biomedical courses, and courses in experiential learning and preclinical instruction. Students are also introduced to patient care in preventive dentistry during the final three months of the academic year.

The second year consists of 50 semester credit hours. This year includes the biomedical courses and continues the experiential learning and preclinical courses, including periodontics, oral and maxillofacial surgery, oral and maxillofacial radiology, endodontics, pediatric dentistry, prosthodontics and orthodontics. Second-year students participate in clinical and didactic courses in operative dentistry and in oral and maxillofacial radiology and preventive dentistry courses, each two semesters in length. During the final weeks of the second year, students prepare to take National Boards Part I.

The third year consists of 44 semester credit hours. During the year students receive concentrated clerkship-organized instruction in nine areas of dentistry: endodontics, operative dentistry, oral and maxillofacial pathology, oral diagnosis, oral and maxillofacial radiology, oral and maxillofacial surgery, pediatric dentistry, periodontics, and prosthodontics. The clerkships provide a unique form of dental education. Specialists for each clerkship provide concentrated instruction over a period of 22.5 clinic days for each discipline except prosthodontics. Instruction in prosthodontics covers forty-five days to be able to include both fixed and removable prosthodontics. The students also participate in clinical experiences in orthodontics. During the third year, each student must achieve a defined level of clinical competency before advancing to the fourth year.

Semester-long didactic courses occupy one afternoon (four hours) per week. Didactic courses are: Systemic Disease Manifestations, The Practice of Dentistry in the Community, Dental Therapeutics, Advanced Oral and Maxillofacial Surgery, and Introduction to Geriatric Dentistry.

In addition, third-year students participate in two year-long courses: Introduction to Quality Assurance and Experiential Learning III. The Experiential Learning III sessions are incorporated into the Introduction to Comprehensive Care course and take place at designated times during in the clerkship seminars. During these sessions, students participate in case-based learning activities.

The fourth year consists of 35 semester credit hours: 30 weeks of comprehensive care and 10 weeks of extramural experiences. Fourth-year students provide comprehensive care, apply and extend new information and assimilate the knowledge, cognitive and psychomotor skills, ethical and professional values, and self-improvement/self-evaluation gained in each specialty area during the previous three years. In addition, students rotate through two weeks of emergency care. Students attend five days of patient management courses and, during the Fall semester, students prepare for National Boards Part II.

The College of Dentistry faculty prepare students in the required areas of outcomes, knowledge, skills and values to achieve a level of competency that faculty deemed necessary to begin the practice of general dentistry.
The collegiate Strategic Plan includes three major categories that state support of the dental education program: the Mission Statement, Core Values and Goals, and Strategies.

The collegiate Mission Statement (goal) of the College of Dentistry, stated at the beginning of the Strategic Plan, specifies “The primary mission of the College of Dentistry is the preparation of general dentists to serve the oral health needs of the citizens of Iowa and the nation.” To earn the Doctor of Dental Surgery degree, students must demonstrate that they have the knowledge, psychomotor skills, cognitive skills, ethical and professional values and the desire for self-improvement/self-directed learning required for entry-level general practice dentistry. The Patient Care Process summarizes the collegiate plan for educating dental students as that relates to the five collegiate outcomes. The Patient Care Process document is distributed to all students in the first year and serves as a guide for their education and for their treatment of patients. The document provides examples of where the educational outcomes may be measured and how those outcomes relate to patient outcomes during the patient care process. Introducing the Patient Care Process document at an early stage of their education provides both students and faculty with a framework to develop critical thinking skills as they apply to patient assessment and planning.

The following description briefly explains the definitions and implementation of these outcomes.

1. **Knowledge**
   For the purposes of predoctoral dental education, knowledge is defined as a core of information and concepts relative to preclinical and clinical general dentistry. This knowledge is fact-based and is essential for entry-level competency. It is of sufficient depth to provide students with a solid foundation for continuing to pursue and assess new knowledge throughout their professional careers.

2. **Psychomotor Skills**
   Psychomotor skills relate to hand-eye coordination. Essential for the competent practice of dentistry, these skills are first developed during the preclinical technique courses and continue to be developed and refined during the clinical curriculum.

3. **Cognitive Skills**
   Cognitive skills relate to the ability to identify, assimilate, evaluate and integrate knowledge from many sources. Cognitive skills are an important component of critical thinking and are particularly relevant to patient assessment and treatment planning. Critical thinking represents a major component of the Experiential Learning courses, and can be defined as a strategy for evaluating and assimilating new information into existing knowledge. The Experiential Learning courses incorporate methods for gathering and analyzing information and formulating and analyzing new and unique issues and problems. Students gain experience in the critical analysis of scientific literature, as well as in evaluating the merit of their own performance during the systematic gathering of data.

In the preclinical curriculum, problem-based and case-based learning experiences incorporate the Patient Care Process framework as a guide for student thought processes that will subsequently be utilized in the clinical curriculum. The components of the Patient Care Process receive varying emphases according to the specific goals of a course.
4. Ethical and Professional Values
Ethical and professional values are based on a set of principles that are developed through instruction in didactic courses, by observing faculty role models, and by peer review. These values are demonstrated in appropriate patient care and professional interactions.

5. Self-Improvement/Self-Directed Learning
Self-improvement and continued learning are values that are developed in the students. The students gain skills and learning tools that enable them to continue seeking and evaluating new and innovative methods of patient care throughout their dentistry careers. Students are expected to self-evaluate their performance and review long-term outcomes for their patients.

All collegiate courses incorporate required levels of knowledge, skills and values as set out in the course syllabi and measurement of these outcomes through defined competencies.

At the completion of four years of dental education, documentation of the outcomes is present in each student record. The records must confirm, to the satisfaction of the faculty and CAPP Committee, that the student possesses the knowledge, skills and values, based on competency to provide patient care at the entry level for general practice.

Goal 1 in the College of Dentistry Strategic Plan is: “Prepare students to work in a changing environment.” To achieve this goal, the teaching of critical thinking skills has been broadened in our curriculum to prepare students to respond to new challenges that will arise throughout their careers. The College defines critical thinking as a set of strategies for identifying and evaluating new information and integrating it into one’s knowledge base. Critical thinking in dentistry is demonstrated by the ability to solve specific treatment problems; critically analyze and evaluate new products, techniques and medications; and have the ability to, and interest in continuing dental education with lifelong learning. The addition of the Experiential Learning courses during the first three years of the curriculum exemplifies the role of these concepts in the dental curriculum. Experiential Learning, which includes Problem-Based and Case-Based Learning, teaches critical thinking and assesses the students’ ability in this area of critical thinking. During these courses, students gain experience in integrating knowledge from the biomedical, behavioral and clinical sciences into solutions to clinical problems.

The activities which support collegiate Core Values include recruiting and retaining students of the highest quality who reflect diverse populations and cultural experiences. Our record of admitting highly qualified students with increasingly higher grade point averages (over 3.5 class average) demonstrates success in this endeavor.

Of great importance to the College, and included in the Strategic Plan, are two additional Core Values that describe the environment necessary for high quality dental education. The first value is the maintenance of an environment in which the worth and contribution of each individual is recognized and valued. The second value is encouraging collegial relationships among faculty, students and staff.

Highly qualified students and the supportive environment in the College of Dentistry contribute to a successful educational program that prepares graduates with the necessary knowledge, skills and values to begin practicing general dentistry in an independent manner.
The faculty of the College of Dentistry have defined ten general competencies required for graduation. These competencies focus on educational outcomes.

Dental education for Iowa students is organized around *The Treatment Planning Process for Patient Care and the Assessment of Student Competencies* (Patient Care Process) and the 2003-2004 *Collegiate Competencies for the New Dentist at the College of Dentistry*. Student and patient care outcomes are integral components of the process. Measurement of student outcomes in knowledge, psychomotor skills and ethical and professional values is conducted in terms of the ten competencies listed in the *Collegiate Competencies*. The competencies encompass those elements the faculty deem necessary to ensure that students are prepared to begin independent, unsupervised dental practice for the pediatric, adolescent, adult, geriatric and medically compromised patient. The competencies, which are assessed on a continuing basis throughout the four years, include the following:

1. Communicate effectively with patients
2. Provide oral health care education
3. Apply ethical and professional values to the practice of dentistry
4. Document and take into account the components necessary to develop a treatment plan
5. Develop a treatment plan
6. Recognize and appropriately manage clinical problems
7. Perform appropriate therapies and procedures
8. Consult with other health care professionals
9. Perform periodic examination and maintenance of patients
10. Apply knowledge of strategies for life-long learning, self-evaluation, and methods of operating a dental practice.

All students receive the *Patient Care Process* and the 2003-2004 *Collegiate Competencies* documents in their first year in the College. Faculty and students are expected to refer to both documents throughout the educational process. Each course syllabus informs students about which competencies will be addressed and measured in the course and describes how individual course competencies relate to the collegiate competencies.

Evaluating dental students is an ongoing process. The faculty evaluate competency at various stages of each student’s development based on the defined collegiate competencies. The faculty view student progress as a continuum. Evaluation is based on the student’s anticipated level of competency at any given time, and students must attain this competency before advancing to the next level of instruction. Should a student fail to achieve a particular competency, remediation is required. Remediation may include repeating a portion of the course or may require repeating the entire course.
Courses leading up to the fourth year measure competencies specific to their area. During the fourth year, the faculty measure all ten competencies in order to ensure that graduates of the College are competent to begin general practice.

To document competency, the College utilizes assessment methods and documents competency appropriate to the discipline and as required for each course. Examples of assessment methods include:

A. **Multiple Choice and/or Short Answer Examinations**

   Multiple choice and/or short answer examinations are useful for assessing recall and understanding and are used extensively during the first two years, especially in the biomedical sciences and preclinical dental courses. Multiple choice/short answer examinations are also used in the third year with cased-based examinations which measure each student’s ability to apply knowledge to clinical situations/scenarios. These examinations are a measure of problem-solving ability using cognitive skills.

B. **Checklists (preclinical/clinic evaluation forms detailing specific behavior)**

   Checklists (preclinical/clinic evaluation forms) list essential or desired specific behaviors, activities or steps that make up a more complex competency or competency component. Checklists can be tailored to assess detailed actions in performing a task, e.g., evaluating patient care skills in information-gathering, treatment planning, assessing ethical and professional behavior, and assessing knowledge, cognitive and psychomotor skills. Checklists are used extensively in the clinic setting for daily evaluation, as well as in preclinical lab courses.

C. **Global Rating**

   Global rating is used for general skills, such as patient care skills, dental knowledge, interpersonal and communication skills. These assessments are retrospective, based on general impressions collected over a period of time (e.g., at the end of a clinical rotation). The rating forms incorporate scales used to assess specific knowledge, skills and behaviors. Written comments may also be included. Global rating is used when multiple faculty are judging an individual student’s performance. It can be seen, for example, in the third year seminar courses, in problem-based learning in the first year, and is used to assess student participation and cooperation.

D. **Portfolios**

   Portfolios are collections of products prepared by the student that provide evidence of learning and achievement related to a learning plan. These portfolios may include written documents and photographs, for example, supporting case presentations. The portfolios may contain a log of clinical procedures. Portfolios are useful for evaluating the mastery of competencies that are otherwise difficult to evaluate. They are part of the evaluation in the fourth year and may address knowledge, skills, professional and ethical values, and the desire for self-improvement.

E. **Assessment of Knowledge Assimilation**

   Assessing knowledge assimilation is useful for evaluating the application of knowledge/cognitive skills, clinical judgment or reasoning to clinical situations. This method of assessment is often used in problem-based learning assignments, including reports, papers, essays and other written projects. Assessing knowledge assimilation is used in the third year in association with clinical images to evaluate diagnosis and treatment planning skills (see example of case-based exams in the 86:165 assessment materials).
F. Objective Structured Clinical Examinations (OSCE)
Objective Structured Clinical Examinations (OSCE) are used to evaluate specific preclinical and clinical skills and abilities. An example can be found in the third year Pediatric Seminar course (90:165).

G. Clinical Competency Exams
Clinical Competency Exams are used in preclinical and clinical courses to evaluate the student’s ability to provide dental treatment independently and at a competent level. The evaluation may include the measurement of knowledge, cognitive and psychomotor skills, professional and ethical behavior and recognition of need for self-improvement.

H. Other
1.) Standardized Patient Examinations are useful in assessing history taking skills, patient exam skills, interaction with patients and communication. These examinations are employed specifically during the third year in the Communication portion of Experiential Learning III.

2.) Individual Instructor Assessment Methods
For example:
   a) Proctoring system
   b) Satisfactory administration of anesthesia

Curriculum Review and Evaluation Process
The Curriculum Committee is composed of students, faculty, administrators and staff. This composition ensures input from all components of the College of Dentistry. The Committee meets monthly, and more often as necessary, for ongoing curriculum review and evaluation.

Curriculum management in the College of Dentistry is based on a flexible and dynamic plan designed to ensure that the curriculum prepares students who are competent to begin independent general practice. The Committee was charged to review and revise the predoctoral curriculum management plan, a process that began in 1997 and was completed in 2002. The Curriculum Committee initiates, reviews, evaluates and monitors the pre-doctoral dental curriculum under the guidance of the Associate Dean for Student Affairs and Curriculum and make recommendations for curriculum revisions to the faculty and the Dean. This charge ensures a complete ongoing curriculum review. An example of the process is demonstrated by the recent addition of Experiential Learning courses to the first three years of the predoctoral program. These courses provide instruction that enable students during the fourth year to develop effective case presentations. A second major review resulted in changes to the third year clinic rotation schedule. These changes were implemented following a complete review of the first and second year curriculum in 1998-2000 and a review of the third and fourth year curriculum from 2000 - 2002. These reviews were conducted by members of the Curriculum Committee and other faculty in ad hoc committees. In addition, each departmental course syllabus is reviewed by the Curriculum Committee on a monthly rotating basis.

A second charge to the Curriculum Committee is to review, study and recommend implementation of specific proposals presented by departments and individual faculty. Faculty members are strongly encouraged to consider innovations to the curricular content.
To assure that long-term implications are reviewed before implementation, such proposals are first presented to the Curriculum Committee. The Committee reviews the proposal in terms of the expected curricular and budgetary demands that could be generated by implementation of the proposal. The proposed change may affect the number of credit hours assigned to a course, and may require changes to other aspects of the curriculum as the change affects other courses and years. These issues are resolved at the Curriculum Committee level and recommendations are forwarded to the Dean regarding the viability of the proposal.

The Curriculum Committee reviews the stated outcomes and defined competencies of the predoctoral educational program.

The Curriculum Committee is charged to review and revise measurement of student outcomes. This activity has been ongoing with an ad hoc committee in 2000-2002 to define the Collegiate Competencies as well as a follow-up ad hoc committee reviewing the instruments used to measure these competencies (2002—2003).

The Curriculum Committee consults with the Associate Dean for Patient Care to review compatibility of student outcomes with patient outcomes, with associated outcomes for students and patients, exemplifies this collaboration. This document describes the process for the education and evaluation of students as they progress towards competency to begin independent, unsupervised general practice dentistry for the pediatric, adolescent, adult, geriatric and medically compromised patient. Faculty and students refer to this document during the four years of the dental curriculum.

The Curriculum Committee, reviews course syllabi, competencies, outcomes and outcomes measurements on a regular and ongoing basis. The collegiate syllabus template asks for specific course competencies and their relationship to the Collegiate Competencies. Methods of evaluating the students’ achievement of the competencies are described in each course syllabus. The competencies and measurements were discussed by faculty during the 2002 and 2003 Collegiate Faculty Retreats. The faculty discussed how they defined and measured their course competencies as they related to the Collegiate competencies.

Measurement tools for assessment of competencies are categorized according to method. During regular course reviews of their courses, course directors describe and discuss their measurement methods with the Curriculum Committee.

Each year, all courses are evaluated by the students enrolled in them. The students express opinions on both course content and instructors. The outcomes of these evaluations are provided to the Curriculum Committee and to the departmental executive officers (DEOs). The DEOs are responsible for sharing this information with their faculty and for overseeing appropriate modifications of course material if needed. Any major modification to a course requires a Curriculum Committee review. The student performance outcomes on the Central Regional Dental Testing Service (CRDTS) Board examination are reviewed and shared with the faculty to identify any needed modifications in preparing students for this examination.

Following graduation, alumni are surveyed to determine their views on various aspects of their educational experiences at The UI College of Dentistry. Specifically, alumni are asked to identify areas of perceived curricular weakness and strength. The survey addresses curriculum content and requests feedback relating to overall satisfaction with the dental curriculum. This information is reviewed by the Curriculum Committee and is distributed to...
the DEOs and course directors so that any necessary revisions to the curriculum can be considered.

A questionnaire is sent to the directors of postdoctoral programs and to dentists who hire Iowa graduates. The survey results are reviewed by the Curriculum Committee and distributed to appropriate DEOs and faculty for their review and recommendations for change. As an example of an outcome of this process based on survey suggestions, the number of senior year Pediatric Dentistry experiences was increased.

The Curriculum Committee has the global monitoring function to ensure integration throughout the four years of the curriculum and to identify any unwarranted repetition. Such repetition is reported to the department DEO so that necessary changes to the courses can be made.

The UI College of Dentistry has strong departments representing all ADA-recognized dental specialties. Each department includes specialty-trained and board-certified faculty members. The faculty in each department incorporate innovative and emerging information from their specialties into the courses they teach and inform the Committee of these changes as necessary.

Eliminating unwarranted repetition and redundancies and specifying the proper sequencing of courses is determined by the Associate Dean for Student Affairs and Curriculum, faculty, and Curriculum Committee through periodic comprehensive reviews of the entire curriculum and systematic review of all courses. The periodic comprehensive reviews are performed through ad hoc committees appointed by the Dean or by the Curriculum Committee. Since the last accreditation review, the College has conducted two major curriculum reviews. The first and second years of the curriculum were reviewed in 1998-2000 and the third and fourth years in 2000-2002.

Students provide feedback to faculty and the Associate Dean for Student Affairs and Curriculum concerning unwarranted repetition in the curriculum through both course evaluations and personal communication. Information is then provided to DEOs who confer with course directors to determine whether changes are needed. Appropriate changes to the course are made at this time. If major changes in a course appear necessary, the issue is brought before the Curriculum Committee to determine whether other courses will be affected by such a change. All affected departments take appropriate action to accommodate the changes. The Curriculum Committee ensures that information about the change is communicated to all faculty.

Departmental curricular issues relating to outdated material or redundancies may be addressed by faculty or the Curriculum Committee. Small changes in course content are usually informational to the Curriculum Committee. Major changes that will affect credit hours, schedules, etc., are brought to the Curriculum Committee for discussion. If the Curriculum Committee determines that a change under consideration may have major consequences, the Committee Chair or Associate Dean for Student Affairs and Curriculum asks the Dean to convene an ad hoc committee to study the issue and make recommendations to the Committee that are then forwarded to the Dean. The Dean discusses the recommendations with Administration and a decision is made as to whether or not to accept the recommendation.
Each department is expected to assess its courses internally for unwarranted repetition and outdated material. The Curriculum Committee reviews all course syllabi and ADA Survey clock hours reports with specific departmental representatives to identify unwarranted repetition among departments in course content. The Curriculum Committee either accepts the courses or asks that the issues be addressed by the course directors and DEOs.

Eliminating any components from a specific course that could affect other courses and clinical experiences requires the approval of the Curriculum Committee.

New innovations and emerging information planned for a course are reviewed by the Curriculum Committee to determine what effect these changes might have on the entire curriculum. Should this material require additional course time, a recommendation is made to the Curriculum Committee. The Committee is responsible for ensuring integration of approved changes throughout the curriculum.