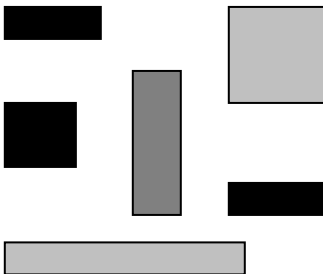


Dental
Admission
Testing
Program

Report 3
2011

User's Manual

2009



DENTAL ADMISSION TESTING PROGRAM USER'S MANUAL

2009

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INTRODUCTION

History of the Dental Admission Testing Program

The development of the Dental Admission Testing Program began in 1945. At that time, there were 39 accredited dental schools in the United States, and 12,000 students were enrolled. As of 2009-2010 there were 59 fully operational, accredited dental schools in the United States, and 20,051 students.

There were three basic reasons for the development of the Dental Aptitude Test Battery, as it was known at that time. One was the high rate of student attrition over the four years of dental school. It was estimated that 20% to 25% of the national first-year class withdrew from dental school before graduation. It was anticipated that the aptitude test data employed by the admission committees in the selection of new students would reduce the number of students withdrawing because of poor scholarship.

Another reason for developing the testing program was that veterans of World War II were beginning to apply to dental school in great numbers, and the schools were concerned with comparing educational records that were several years old with the more recent records of non-veterans. It was believed that the veterans could be more accurately appraised through the use of their educational records together with recent test scores. This leads to the third reason for developing the testing program. The dental school admission officers were aware that the grades from the various high schools and colleges had different meanings with regard to educational achievement, and it was thought that by using a national test, a common yardstick could be used to compare students' achievements.

In 1945, the committee that was developing the Dental Aptitude Test Battery was looking at the possibility of measuring students' ability to read and comprehend, to memorize verbal and visual material, to recognize word meaning, to reason, to visualize patterns, to express themselves orally, and to demonstrate manual dexterity. The committee was also interested in the possibility of measuring a student's interest, personality, perseverance, and social instincts. To the credit of that committee, the list was greatly reduced when the test battery was made definitive. The Dental Aptitude Test Battery was initiated as an instrument to measure basic abilities in mathematics, verbal reasoning, reading comprehension in the sciences, and academic achievement in the natural sciences. The committee also included tests of object visualization and chalk carving.

With some exceptions, the types of tests given in the testing program have remained rather constant through the years. In 1972, an organic chemistry test was added to the Survey of the Natural Sciences, and the Chalk Carving Test was replaced by the Perceptual-motor Ability Test. Prior to 1972, the Chalk Carving Test and Space Relations Test provided information related to manual dexterity as well as the ability to visualize in three dimensions. For various reasons, including the difficulty and costliness of administering a manual test on a national basis, the Chalk Carving Test was replaced by the Perceptual-motor Ability Test. The validation studies (Graham, 1972, 1974) that compared Chalk Carving Test scores and the pencil and paper Perceptual-motor Ability Test scores with dental school performance in technique courses indicated that the pencil-and-paper test scores were as valid as the Chalk Carving Test in predicting performance.

Four principles were established as desirable in developing these Perceptual-motor Ability Tests, these were: 1) a test suitable for group administration, 2) a non-manual performance test, 3) high reliability not

subject to practice effects, and 4) ability measures that discriminated between technical and non-technical proficiency. The underlying factor that permitted the replacement of the Chalk Carving Test with the Perceptual-motor Ability Test was that visual perception, when measured reliably through a pencil-and-paper test, would provide a valid predictor for judging the probability of success in the technique courses required by the curriculum.

In 1981, the format of the test was once again changed to include only a test of quantitative reasoning ability, a test to measure reading comprehension ability, a perceptual ability test, and a survey of the natural sciences, which measured achievement in biology, general chemistry, and organic chemistry. The Verbal Reasoning Test was dropped because there had been little evidence of any significant positive relationship with dental school performance. The two perceptual tests were combined into one, including those parts having the highest positive correlations with technique courses in the annual validity studies. The Perceptual Ability Test in the DAT currently contains 90 items, which include problems in block counting, angle size, form development, orthographic projections, paper folding, and comparison of shapes of objects with apertures.

In October 1988, the standard score scale that was used to report the results of the DAT was changed from the '-1' to '9' scale to the present '1' to '30' scale. The 1 to 30 standard score scale is based on the log ability scale defined by the Rasch Model (Rasch, 1960, 1980; Wright, 1977; and Wright & Stone, 1979) for dichotomous item responses. Beginning with the October 1988 test administration, the test results for all tests on the battery except the Reading Comprehension Test were equated to the October 1986 ability scale using the Rasch common item equating procedure. The Reading Comprehension Test could not be equated at that time because all of the items were dependent on a single long passage, which is inappropriate for the common item equating technique. Beginning in March 1989, the format of the Reading Comprehension Test was modified to include three shorter passages with 16 to 17 items associated with each passage. This format allowed for the use of the common item equating technique. Beginning with the October 1989 test administration, all of the reading comprehension standard scores were equated to the April 1989 ability scale.

Content of the Dental Admission Test

There are four individual tests contained in the Dental Admission Test battery. The first of these is the Survey of the Natural Sciences. This is an achievement test that evaluates what the examinees have accomplished in undergraduate courses in several sciences. The test consists of 100 multiple-choice items divided into three sections: 40 items of basic first year biology, 30 items of general chemistry, and 30 items of organic chemistry. While emphasis has been placed on selecting items requiring comprehension and problem solving rather than simple recall, test constructors consider the recall of information in some areas to be essential. Table 1 below shows the cognitive processing demands of items on new editions of the DAT. As shown, general and organic chemistry incorporate a significant percentage of comprehension and problem solving level items. The content specifications for these three sections are listed in Figures 1 to 3. When the Survey of the Natural Sciences is scored, separate scores are given for each of the subtests as well as the score for the Survey as a whole.

Table 1
Dental Admission Test
Cognitive Demands By Discipline

Discipline	Biology			General Chemistry			Organic Chemistry			QRT		
No. of Items:	40			30			30			40		
DAT #1												
Cognitive Level†	1	2	3	1	2	3	1	2	3	1	2	3
Percentage	50%	47%	3%	8%	70%	22%	15%	74%	11%	50%	42%	8%
DAT #2												
Cognitive Level†	1	2	3	1	2	3	1	2	3	1	2	3
Percentage	58%	39%	3%	26%	67%	7%	22%	67%	11%	39%	47%	14%

† 1: Recall; 2: Comprehension; 3: Problem Solving

The second examination included on the DAT is the Quantitative Reasoning Test. Prior to 1990, this test consisted of 50 items, 30 items of mathematical problems and 20 items of applied mathematics. Beginning in spring 1990, the length of the Quantitative Reasoning Test was reduced to 40 items. The test now consists of 30 items of mathematical problems and 10 items of applied mathematics. The content specifications for the Quantitative Reasoning Test are listed in Figure 4. The number of items was reduced in order to resolve several problems associated with this test (Smith, Kramer, & Kubiak, 1989, 1990). There are no advanced mathematics or calculus problems. The knowledge of basic mathematics, trigonometry and geometry, and algebra required of a first-year college student in preparation for college science courses is presumed in the test. The percentage of items at various cognitive demand levels is shown in the chart above.

The third test included in the DAT is the Reading Comprehension Test. This test consists of three reading passages of approximately 1,500 words each. The subject matter for these passages is developed from aspects of dental, basic, or clinical science that are not covered in an undergraduate college curriculum. Each passage is followed by 16 or 17 items that examine the concepts and ideas developed in the passage. The design of the test attempts to reproduce a reading experience that would be similar to that of a dental science textbook.

The fourth test is the Perceptual Ability Test (PAT). The PAT consists of 90 two-dimensional and three-dimensional problems. This test involves several of the major factors commonly identified in studies of perceptual or spatial ability, i.e. angle discrimination, block counting, paper folding, form development, and two forms of object visualization. The form development, paper folding, and object visualization factors relate almost exclusively to form perception. It has been demonstrated, especially in industrial psychology, that those factors that constitute the major attributes of one's ability to perceive small differences actually are valuable in selecting applicants who need fine manual dexterity.

A composite, or average score, is included in the score report. This is called the Academic Average. It is the rounded arithmetic mean of the quantitative reasoning, reading comprehension, biology, and general and organic chemistry standard scores.

The four tests in the Dental Admission Test battery take approximately four and one-half hours to complete. Prior to computerization of the DAT, the written versions were given twice each year, typically in April and October. The testing period usually started at 8:30 a.m. and ended about 1:00 p.m. With the introduction of the computerized DAT in 1999, the four tests can be taken nearly any day of the year at 400 Prometric Testing Centers throughout the United States.

Test Construction

The process of test construction is continuous and varies for each test. The construction of the Survey of the Natural Sciences and the Quantitative Reasoning Test is initiated by annually requesting science and mathematics instructors in pre dental programs throughout the nation to submit test items in the disciplines in which they teach. These test items are reviewed by test construction committees, which select items that meet content and psychometric standards established for this test. The Reading Comprehension Test is based on passages and item sets that are written on request by dental school faculty. Special consultants and staff of the American Dental Association construct the items on the Perceptual Ability Test. Some of the items on the DAT are reserved for pretesting new items. They are not included in the scoring of the test.

The selection of previously administered items to be included in the tests depends on an item analysis which includes two parameters, i.e. difficulty of the item and its discrimination index. The difficulty level of the item is inversely related to the percentage of examinees who answer the item correctly. As the percentage increases, the difficulty decreases. The recommended level of difficulty for a DAT item is set between 40% and 70%, although the mean item difficulties tend toward the upper end of this range. The discrimination index is a point-biserial correlation coefficient. The coefficient of an item represents the correlation between the scores on that item (correct or incorrect) and the total score on that particular test. For example, a low correlation coefficient of 0.01 would indicate that essentially the same number of high scoring examinees responded to that item correctly as did low scoring examinees. This item would not contribute to the consistency or reliability of this test. A higher correlation coefficient of 0.45 would indicate an item that contributes greatly to the consistency, precision, or reliability of the ability being measured. Items not having satisfactory difficulty levels or discrimination indices are either revised or discarded.

Scoring the Dental Admission Test

Each of the tests used on the Dental Admission Test battery yields a raw score which is the sum of the examinee's correct answers. The raw score is converted to a standard score so that it is possible to compare an examinee's performance across tests on the battery and across different editions.

Since the adoption of the Rasch psychometric model in 1988, each part of the DAT contains a set of anchor items, which has been used in previous administrations of the test. Difficulty parameters of these items are used to equate the test. The conversion of raw scores to the standard score scale is based on the underlying log ability scale used by the Rasch psychometric model (Rasch, 1960; Wright, 1977; Wright & Stone, 1979). The log ability scale offers several advantages. First, it makes no assumptions about the underlying distribution of scores. Second, the person abilities and the item difficulties in this model are on a common metric that allows for the interpretation of the log abilities in terms of the skills

or tasks represented on the tests. Third, the log ability scale is a linear metric. This means that the difference between a score of 3 and 4 represents the same ability as a difference between the scores of 16 and 17. A complete description of the new standard score scale can be found in Smith, Kramer, and Kubiak (1988), and a description of equating procedures can be found in Larkin (1992).

Because the current standard score scale was first used with the October 1988 test edition, the cumulative frequency distributions for the October 1988 test results are provided in order to facilitate the comparison among groups (See Tables 2-9). For the Reading Comprehension Test, the cumulative frequency distribution for the April 1989 which is the base year is presented. The frequency distributions for the year 2009 are also supplied in the same tables for an easy comparison with previous years' distributions.

Evaluation of the Dental Admission Testing Program

For any testing program, validity is the most important consideration. Validity refers to the degree to which logic and evidence support the use of test scores for making critical decision, such as admission of examinees to dental education programs. National testing standards provide useful guidance to testing organizations that can help improve validation. It is important to follow these standards and give evidence that a testing program such as the DAT follows these standards. Sources of validity evidence for the DAT include content, external correlational, and reliability evidence.

Content Evidence

Content relevance and representativeness, narrowly defined, refers to the quality of the sample of content from a specific content domain. It is based on professional judgments about the test content and the content domain. For this aspect of validity, the Survey of the Natural Sciences on the DAT reflects how well the test items cover areas of general biology, and general and organic chemistry typically contained in the undergraduate curriculum. For the Dental Admission Test battery, this aspect of validity is assessed primarily by the evaluation and judgment of its test construction committee members, who are subject matter experts. The committee members judge the appropriateness, the relevance, and the representativeness of the test content based on what is being taught in pre-dental courses. The validity of the Reading Comprehension Test is based on the judgment of dental faculty, who write reading passages and items representative of reading material encountered in the first year of dental school.

External Correlational Evidence

External correlational evidence is also investigated to determine the extent to which an individual's future level on various criteria is predicted from prior test performance. It is desirable that the test be related to future performance in dental school and later on the National Board Dental Examinations (American Dental Association, 2009). The performances on these external variables can provide some evidence of the relationship between the test and different methods for measuring the same and distinct constructs or traits (Messick, 1989, pp. 16-46).

Evidence indicating the validity of the DAT is available from two sets of criteria: dental school performance and performance on the National Board Dental Examinations. Each year the relationships between DAT scores and first year dental school grades are analyzed by means of Pearson product moment correlations. Table 11 indicates the percentage of dental schools whose first year grades (2007-2008) have significant positive correlations with quantified admission criteria. Table 12 indicates the median correlation coefficients obtained between 2007-2008 first year dental school grades and

admission criteria. Both Tables 11 and 12 indicate that, for the most part, Dental Admission Test scores have a significant positive relationship to performance in the first year of dental school.

In most cases, the DAT Academic Average and Total Science score have a stronger relationship with first year performance than pre dental grade point averages. As indicated in Table 12, multiple regression using the individual DAT test scores (Quantitative Reasoning, Reading Comprehension, Biology, General Chemistry, Organic Chemistry, and Perceptual Ability) result in better prediction of first year GPA than the Academic Average. Multiple regression using individual DAT scores, pre dental GPA, and pre dental science GPA result in the best combination of predictors for first year GPA. This multiple R, on the average, almost doubles the amount of explained variance of the best single predictor of dental school first year GPA. The Perceptual Ability Test scores have the strongest relationship with technique performance as compared with the other variables. See Kramer (1986) for a further discussion of the validity of the DAT.

In addition to the validity of the DAT in relation to dental first- and second-year performance, the DAT has provided correlational information periodically between DAT and National Board Dental Examinations scores. There is consistent evidence, as seen in Table 13, that DAT scores have a significant positive relationship with the scores on the National Board Dental Examinations. This relationship provides evidence that the DAT is valid for predicting performance beyond the first year.

The construct validity of the DAT battery is in part evaluated by the Perceptual Ability Test (PAT). The PAT was constructed in the belief that perceptual abilities are important requirements for successful completion of the technique courses in dental school, and that perceptual abilities have a direct relationship to a person's measure of eye-to-hand fine motor coordination, also required in the curriculum. The reader is referred to the research conducted by Kramer, Kubiak, and Smith (1989) and Kramer and Kubiak (1990) for discussions of the validity of the PAT in the DAT battery.

Reliability Evidence

Reliability is a primary type of validity evidence. It is often defined as the precision or consistency of the test scores. The assumption that the DAT is a sufficiently precise instrument to permit meaningful descriptions of the abilities measured is based on the reliability of the scores. The reliability, or internal consistency, of the scores traditionally is evaluated by the Kuder-Richardson Formula 20 (KR₂₀). The reliability coefficients of the scores derived from the four tests are as follows: Quantitative Reasoning Test (40 items), 0.79; Reading Comprehension Test (50 items), 0.81; Survey of the Natural Sciences Test (100 items), 0.93; and Perceptual Ability Test (90 items), 0.90. These reliability coefficients are well within the acceptable range and are typical of standardized tests and of the DAT battery used in this program since the early 1970s. Also, it has been customary to report some of the descriptive statistics from the test results. Table 10 shows the means and standard deviations for the 2009 DAT.

Supplemental Studies Related to the Dental Admission Test

A. Item Response Time Study

Yang, O'Neil, and Kramer (2002) investigated the relationship between item difficulty and response time on the six subtests of the Perceptual Ability Test: angle discrimination, block counting, form development, paper folding, and two forms of object visualization. From the sample of 389 examinees, three distinct levels of difficulty emerged among the six subtests

across the groups. They found that there was no Differential Item Functioning (DIF) and that a statistically significant ($p < .05$) correlation coefficient of item difficulty was found between the slow and fast responders. The researchers concluded that regardless of response time, the same underlying construct was measured; the PAT scores were equally applicable to all response groups; and different sources of item difficulty may exist among the six PAT subtests.

B. Examinees Who Repeat the DAT

Before January 2007, policy allowed individuals to take the DAT an unlimited number of times. However, the DAT Program reports scores for only the most recent four attempts and with the introduction of the computerized DAT, examinees must wait 90 days before retesting. The frequency distribution of repeaters for 2009 is provided in Table 14. Also as shown at the bottom of the table, repeaters do not perform as well as those taking the test for the first time.

Effective January 2007, examinees who have attended three or more DAT exams must apply for special permission to take the test again. For test administration purposes, anyone who has been seated at a computer workstation at a Prometric Test Center and started the exam by electronically agreeing to the confidentiality statement will be deemed to have “attended” the exam. This policy includes any previous examination attempts. Requests for additional testing must be submitted in writing to the Department of Testing Services and must include evidence of current (within the previous 18 months) intent to apply to dental school. Acceptable forms of evidence may include: 1) a copy of a completed and submitted application to dental school, 2) a letter of rejection from a dental school, 3) a letter from a dental school admissions officer encouraging you to retest or reapply, or 4) a letter on school stationery from a college or university health profession advisor or instructor verifying that you are applying/reapplying to dental school.

Those who take review courses between their first and second attempts have statistically significant average increases in their scores for all tests on the battery except for reading comprehension and quantitative reasoning. In a study of 2,050 examinees who repeated the DAT during 2009, there was an increased average score for all subjects and the academic average. The average gain was about one-third standard score point greater for those who participated in a preparation or review course beyond the gains shown for non-participants. For example, the gain in the academic average for non-participants was 0.81, and the gain for participants was 1.10 standard score points. Of the 2,050 examinees, 561 participated in a course of some kind. While these gains are statistically significant, their significance may not be practical.

Samples of the four examinations used in the DAT program are available to test applicants as a means of discovering possible areas of weakness in their comprehension of subjects covered on the test. They also enable examinees to become familiar with the types of materials included in the test, as well as the general format of the various parts of the test battery. A tutorial to familiarize the examinee with the mechanics of taking the DAT on computer is available for free at www.ADA.org. The tutorial does NOT include sample DAT content, but it does provide the opportunity to become familiar with the basic steps involved in proceeding through the test. At the Prometric Testing Center, the examinee will be able to become familiar with the workings of the computer by taking a brief optional tutorial before beginning the actual test.

C. Performance on DAT: Female vs. Male

The score distributions for females and males taking the test in 2009 are shown in Tables 15 through 22. The gender information used to create these tables is self-reported on their applications and not all examinees report this information. A total of 304 (2.2%) examinees did not report their gender and were excluded from these tables. In 2009, 50.9% of the examinees were male and 49.1% were female. As shown in Tables 15 through 22, males as a group scored slightly higher than females. However, there is no evidence to suggest that the observed differences in average performance are statistically significant.

Kramer and Smith (2001) conducted an investigation on gender differences in the test item design components influencing the difficulty of spatial ability items. They observed that males outperformed females on both paper folding and form-development items. They found that different components contributed little variation in item difficulties across gender, however. This finding leads to the conclusion that any differences in raw scores observed for males and females were due to ability. No items were in favor of either females or males.

D. Performance on DAT: Ethnicity

The score distributions for examinees taking the DAT in 2009, who reported their ethnicity, are shown in Tables 23-30. A total of 870 (6.2%) did not report their ethnicity. These examinees are not included in the individual breakdowns reported in the tables, but they are included in the total percentages. In 2009, 58.5% of the examinees reporting their ethnicity were white; 0.4% American Indian; 27.5% Asian; 6.4% Black; and 7.2% Hispanic. No statistical comparisons were made among the ethnic groups for the purposes of this report.

Other Brochures and Reports Available Regarding the Dental Admission Test

- A. *Dental Admission Test (DAT) Program Guide, 2010.* This publication provides policies and procedures related to the DAT along with the information on the content specifications and preparation materials.
- B. *Dental Admission Test Validity Study, 2007-2008.* This most recent study examined the relationship between DAT scores and predental GPAs with student performance during the first two years of dental schools.
- C. *Dental Admission Test (DAT) Examinee Information, 2009.* Examinee Information provides self reported demographic information on the individuals who participated in the testing program. The information includes gender, ethnicity and primary language, parents' income/occupations/ethnicity, undergraduate majors and GPA, and whether the examinee took a review course.
- D. *Dental Admission Testing Program Resource Information for Interpreting DAT Scores for Minority Examinees.* This resource information is provided to assist dental school admission officers who may have questions regarding the interpretation of DAT scores for various applicants. The current edition of this document includes summaries based on studies of aggregate DAT scores. All analyses are based on examinee self-reported race/ethnic status; the

proportion of examinees reporting their race/ethnic status varies from year to year from 80% to 90%.

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Table 2
Dental Admission Test
Quantitative Reasoning
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
7	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1
8	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2
9	0.1	0.3	0.2	0.4	0.6	0.8	0.4	0.6
10	0.6	0.8	1.0	1.4	1.4	2.1	1.4	2.1
11	1.7	2.5	1.9	3.4	2.3	4.4	3.2	5.2
12	5.2	7.7	3.8	7.1	5.2	9.6	5.6	10.8
13	9.8	17.5	7.0	14.2	8.5	18.1	9.1	19.9
14	12.7	30.2	10.4	24.6	10.9	29.0	15.0	34.9
15	16.1	46.3	11.4	36.0	13.6	42.6	14.8	49.7
16	19.3	65.6	14.9	50.9	14.4	56.9	16.5	66.2
17	12.1	77.7	14.5	65.4	10.8	67.7	12.0	78.2
18	9.2	86.9	10.4	75.7	10.4	78.1	8.4	86.6
19	8.1	94.9	8.2	83.9	7.9	86.0	5.9	92.5
20	2.0	96.9	5.8	89.7	4.4	90.4	2.5	95.0
21	1.9	98.8	2.8	92.5	3.6	94.0	2.1	97.1
22	0.6	99.4	2.5	94.9	2.5	96.5	1.2	98.3
23	0.2	99.7	2.1	97.0	1.1	97.6	0.8	99.0
24	0.3	100.0	1.3	98.3	0.7	98.2	0.2	99.2
25	0.0	100.0	0.6	98.9	0.3	98.5	0.4	99.6
26	0.0	100.0	0.6	99.5	0.9	99.4	0.1	99.6
27	0.0	100.0	0.3	99.8	0.0	99.4	0.1	99.8
28	0.0	100.0	0.2	100.0	0.3	99.7	0.0	99.8
29	0.0	100.0	0.0	100.0	0.0	99.7	0.2	99.9
30	0.0	100.0	0.0	100.0	0.3	100.0	0.1	100.0
Mean	15.75		16.66		16.31		15.66	
SD	2.39		3.15		3.22		2.79	
Count	2631		6643		11358		13995	
Missing	0		0		5		0	

† Base Exam

* Number of examinations given to examinees

Table 3
Dental Admission Test
Reading Comprehension
Cumulative Percentile Distribution

Score	April 1989 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
10	0.1	0.2	0.1	0.2	0.2	0.3	0.1	0.2
11	0.8	1.0	0.2	0.3	0.3	0.6	0.2	0.4
12	1.2	2.2	0.4	0.7	1.1	1.7	0.4	0.8
13	2.1	4.3	0.8	1.5	1.6	3.3	0.9	1.7
14	3.6	7.9	2.5	4.0	3.5	6.8	2.6	4.3
15	8.6	16.5	4.5	8.5	5.6	12.4	4.4	8.7
16	9.7	26.2	7.8	16.3	9.4	21.8	6.5	15.2
17	13.1	39.3	11.6	27.9	9.5	31.3	10.9	26.1
18	15.7	55.0	13.2	41.1	14.1	45.4	13.0	39.1
19	15.4	70.4	14.0	55.0	15.0	60.4	14.8	53.9
20	12.8	83.2	13.5	68.6	10.5	70.8	12.4	66.4
21	7.0	90.2	10.1	78.7	11.7	82.5	12.2	78.5
22	5.7	95.9	7.4	86.0	6.3	88.8	7.1	85.6
23	1.6	97.4	5.8	91.8	4.1	92.9	4.9	90.5
24	1.1	98.5	3.4	95.3	3.2	96.1	3.9	94.5
25	0.7	99.2	2.4	97.6	2.0	98.0	2.7	97.2
26	0.6	99.9	0.6	98.3	0.8	98.8	1.5	98.7
27	0.0	99.9	1.3	99.6	0.8	99.6	0.2	98.9
28	0.1	100.0	0.0	99.6	0.0	99.6	0.9	99.8
29	0.0	100.0	0.4	100.0	0.3	100.0	0.0	99.8
30	0.0	100.0	0.0	100.0	0.0	100.0	0.2	100.0
Mean	18.12		19.28		18.89		19.40	
SD	2.70		2.98		3.05		3.01	
Count	2255		6643		11360		13995	
Missing	0		0		3		0	

† Base Exam

* Number of examinations given to examinees

Table 4
Dental Admission Test
Biology
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
8	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0
9	0.7	1.0	0.1	0.1	0.0	0.1	0.1	0.1
10	2.1	3.1	0.2	0.3	0.2	0.2	0.3	0.4
11	4.6	7.7	0.7	1.1	0.8	1.0	0.8	1.1
12	9.5	17.2	1.9	2.9	1.7	2.7	1.5	2.6
13	12.2	29.5	3.3	6.2	4.1	6.9	3.1	5.7
14	13.4	42.9	6.5	12.8	7.3	14.1	6.1	11.8
15	16.3	59.1	11.1	23.9	10.8	24.9	8.8	20.6
16	10.6	69.8	14.6	38.4	14.8	39.8	14.0	34.6
17	14.0	83.8	16.1	54.5	16.0	55.8	15.1	49.7
18	7.4	91.2	13.6	68.1	14.6	70.4	14.9	64.6
19	4.3	95.5	10.1	78.2	11.6	82.0	13.2	77.7
20	1.7	97.2	10.5	88.7	8.0	89.9	11.3	89.0
21	1.4	98.6	4.2	92.9	3.7	93.7	4.1	93.1
22	0.8	99.4	2.8	95.8	3.4	97.1	3.4	96.6
23	0.3	99.6	2.0	97.8	1.7	98.8	1.2	97.8
24	0.0	99.6	1.6	99.4	0.2	99.0	1.4	99.1
25	0.3	99.9	0.0	99.4	0.7	99.7	0.0	99.1
26	0.0	99.9	0.6	99.9	0.1	99.8	0.5	99.6
27	0.0	99.9	0.0	99.9	0.0	99.8	0.2	99.8
28	0.1	100.0	0.1	100.0	0.2	100.0	0.0	99.8
29	0.0	100.0	0.0	100.0	0.0	100.0	0.1	99.9
30	0.0	100.0	0.0	100.0	0.0	100.0	0.1	100.0
Mean	15.05		17.39		17.24		17.57	
SD	2.66		2.73		2.64		2.69	
Count	2631		6643		11363		13995	
Missing	0		0		0		0	

† Base Exam

* Number of examinations given to examinees

Table 5
Dental Admission Test
General Chemistry
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
7	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.1
8	0.0	0.3	0.1	0.2	0.2	0.2	0.1	0.1
9	1.1	1.3	0.2	0.5	0.2	0.5	0.2	0.3
10	1.5	2.9	0.5	0.9	1.0	1.5	0.4	0.7
11	4.9	7.7	2.5	3.4	2.5	4.0	0.9	1.5
12	8.9	16.6	3.4	6.7	4.2	8.2	2.0	3.5
13	10.3	26.9	5.3	12.0	5.7	13.9	4.3	7.8
14	12.9	39.9	8.5	20.6	7.4	21.4	5.7	13.4
15	12.9	52.8	10.7	31.3	8.9	30.3	10.6	24.1
16	11.6	64.3	11.1	42.4	15.8	46.1	11.7	35.8
17	10.6	75.0	12.3	54.7	10.6	56.7	12.8	48.6
18	9.9	84.8	10.6	65.4	11.0	67.7	15.9	64.6
19	4.5	89.3	9.9	75.3	10.7	78.3	11.3	75.9
20	3.2	92.5	6.7	82.0	7.8	86.1	6.2	82.1
21	3.4	95.9	6.9	88.8	5.1	91.3	6.7	88.9
22	2.1	98.1	4.3	93.1	0.5	91.8	4.3	93.1
23	1.1	99.1	2.0	95.1	3.9	95.6	3.1	96.2
24	0.0	99.1	0.8	95.9	0.0	95.6	1.9	98.1
25	0.0	99.1	2.5	98.4	3.0	98.7	0.5	98.6
26	0.7	99.8	0.3	98.8	0.1	98.8	0.4	99.0
27	0.0	99.8	0.5	99.3	0.5	99.3	0.6	99.6
28	0.0	99.8	0.7	100.0	0.0	99.3	0.0	99.6
29	0.2	100.0	0.0	100.0	0.7	100.0	0.1	99.7
30	0.0	100.0	0.0	100.0	0.0	100.0	0.3	100.0
Mean	15.54		17.35		17.15		17.68	
SD	3.14		3.47		3.47		3.12	
Count	2631		6643		11363		13995	
Missing	0		0		0		0	

† Base Exam

* Number of examinations given to examinees

Table 6
Dental Admission Test
Organic Chemistry
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
3	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.1
4	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.1
5	0.0	0.3	0.0	0.1	0.0	0.1	0.0	0.1
6	0.2	0.4	0.1	0.2	0.0	0.1	0.0	0.1
7	0.4	0.8	0.1	0.3	0.0	0.1	0.1	0.2
8	0.5	1.4	0.2	0.4	0.3	0.4	0.0	0.2
9	3.2	4.6	0.2	0.7	0.9	1.3	0.3	0.5
10	2.9	7.5	0.9	1.6	1.6	2.9	0.7	1.2
11	7.6	15.1	2.1	3.7	3.1	5.9	1.7	2.9
12	10.1	25.2	3.4	7.1	4.5	10.5	3.3	6.2
13	16.0	41.3	6.1	13.2	5.5	16.0	4.3	10.5
14	11.4	52.6	6.2	19.3	9.9	25.8	7.4	17.9
15	10.3	62.9	10.9	30.3	9.4	35.2	10.5	28.4
16	14.3	77.2	10.0	40.3	10.3	45.6	10.6	39.1
17	4.4	81.5	11.3	51.5	11.7	57.2	11.8	50.9
18	7.6	89.2	11.7	63.2	10.9	68.2	10.4	61.3
19	3.4	92.6	11.6	74.8	10.6	78.8	11.8	73.1
20	2.3	94.9	6.8	81.6	6.3	85.1	8.5	81.6
21	2.3	97.2	6.0	87.6	5.5	90.6	5.7	87.3
22	1.6	98.8	3.0	90.5	1.9	92.4	4.6	91.9
23	0.0	98.8	3.7	94.2	2.9	95.3	3.5	95.4
24	1.0	99.8	0.0	94.2	0.0	95.3	1.1	96.5
25	0.0	99.8	3.8	98.0	3.0	98.3	0.1	96.6
26	0.0	99.8	0.0	98.0	0.0	98.3	1.8	98.4
27	0.2	100.0	2.0	100.0	0.6	99.0	0.5	98.9
28	0.0	100.0	0.0	100.0	0.0	99.0	0.0	98.9
29	0.0	100.0	0.0	100.0	1.0	100.0	0.2	99.1
30	0.0	100.0	0.0	100.0	0.0	100.0	0.9	100.0
Mean	14.58		17.49		16.99		17.62	
SD	3.25		3.64		3.71		3.57	
Count	2631		6643		11362		13995	
Missing	0		0		1		0	

† Base Exam

* Number of examinations given to examinees

Table 7
Dental Admission Test
Survey of the Natural Sciences
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10	1.1	1.2	0.1	0.2	0.2	0.3	0.1	0.1
11	4.0	5.2	0.7	0.9	1.1	1.4	0.4	0.6
12	7.7	13.0	1.9	2.7	2.3	3.7	1.9	2.5
13	12.5	25.4	3.9	6.7	5.0	8.7	3.3	5.8
14	18.4	43.8	7.5	14.2	7.6	16.3	6.4	12.2
15	14.3	58.2	11.4	25.6	10.8	27.1	10.1	22.3
16	14.0	72.2	13.1	38.7	14.5	41.6	12.9	35.2
17	11.4	83.5	15.7	54.3	14.8	56.4	14.8	50.1
18	7.7	91.3	13.5	67.9	14.1	70.5	14.8	64.9
19	5.0	96.3	11.0	78.9	11.9	82.3	12.1	76.9
20	1.5	97.8	9.3	88.2	7.7	90.1	10.2	87.1
21	1.1	98.9	5.1	93.3	4.6	94.6	5.8	92.9
22	0.8	99.6	3.6	96.9	2.6	97.2	3.7	96.6
23	0.1	99.7	1.7	98.6	1.3	98.6	1.7	98.3
24	0.2	99.8	0.6	99.2	1.0	99.6	0.9	99.3
25	0.1	99.9	0.3	99.6	0.2	99.8	0.4	99.6
26	0.1	100.0	0.2	99.8	0.2	99.9	0.2	99.8
27	0.0	100.0	0.1	99.9	0.0	99.9	0.1	99.9
28	0.0	100.0	0.0	99.9	0.0	99.9	0.1	100.0
29	0.0	100.0	0.0	100.0	0.1	100.0	0.0	100.0
30	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
Mean	15.14		17.34		17.12		17.56	
SD	2.43		2.70		2.68		2.67	
Count	2631		6643		11363		13995	
Missing	0		0		0		0	

† Base Exam

* Number of examinations given to examinees

Table 8
Dental Admission Test
Perceptual Ability
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
8	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0
9	0.1	0.1	0.3	0.4	0.3	0.4	0.1	0.1
10	0.2	0.3	0.9	1.3	0.6	1.0	0.2	0.4
11	1.4	1.7	1.5	2.8	1.6	2.6	0.6	0.9
12	3.4	5.1	3.0	5.8	3.3	5.9	1.5	2.4
13	7.6	12.7	5.5	11.3	6.4	12.3	2.9	5.2
14	14.3	27.0	9.1	20.4	10.1	22.4	5.2	10.4
15	14.5	41.5	10.9	31.3	13.5	35.8	7.3	17.7
16	18.4	59.9	13.3	44.6	14.7	50.5	10.4	28.1
17	10.9	70.8	12.7	57.3	16.1	66.6	12.8	41.0
18	11.2	81.9	14.9	72.1	15.1	81.7	12.6	53.5
19	8.1	90.0	10.5	82.6	9.1	90.8	14.5	68.0
20	4.1	94.1	7.9	90.6	5.9	96.7	11.7	79.7
21	2.7	96.8	4.4	95.0	2.0	98.7	8.6	88.3
22	1.4	98.2	2.7	97.7	0.9	99.6	5.4	93.7
23	1.0	99.2	1.5	99.2	0.2	99.8	2.8	96.5
24	0.5	99.7	0.3	99.5	0.1	99.9	1.7	98.2
25	0.2	99.9	0.2	99.7	0.1	100.0	0.9	99.1
26	0.1	100.0	0.2	99.9	0.0	100.0	0.6	99.7
27	0.0	100.0	0.1	99.9	0.0	100.0	0.0	99.7
28	0.0	100.0	0.0	100.0	0.0	100.0	0.2	99.9
29	0.0	100.0	0.0	100.0	0.0	100.0	0.0	99.9
30	0.0	100.0	0.0	100.0	0.0	100.0	0.1	100.0
Mean	16.21		16.88		16.35		18.17	
SD	2.58		2.85		2.44		2.92	
Count	2631		6643		11363		13995	
Missing	0		0		0		0	

† Base Exam

* Number of examinations given to examinees

Table 9
Dental Admission Test
Academic Average
Cumulative Percentile Distribution

Score	October 1988 †		1999		2004		2009	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
9	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
10	0.4	0.5	0.1	0.1	0.1	0.1	0.0	0.1
11	1.7	2.1	0.3	0.5	0.6	0.8	0.3	0.3
12	5.2	7.3	1.0	1.5	1.8	2.5	0.8	1.2
13	11.3	18.7	2.8	4.3	3.4	5.9	2.7	3.8
14	16.0	34.7	5.5	9.8	7.1	13.0	5.3	9.2
15	16.9	51.5	10.0	19.8	10.6	23.6	9.1	18.2
16	16.6	68.2	13.4	33.1	14.1	37.7	13.3	31.6
17	12.8	81.0	16.3	49.4	16.9	54.5	17.6	49.1
18	9.7	90.6	15.7	65.1	15.3	69.9	16.8	65.9
19	5.0	95.7	13.2	78.3	11.7	81.6	14.6	80.5
20	2.3	97.9	8.5	86.8	7.7	89.2	9.2	89.7
21	1.4	99.4	6.0	92.9	5.2	94.4	5.3	95.0
22	0.4	99.8	3.9	96.8	2.8	97.3	2.7	97.7
23	0.2	99.9	1.9	98.7	1.6	98.8	1.4	99.1
24	0.1	100.0	0.9	99.6	0.7	99.6	0.6	99.7
25	0.0	100.0	0.3	99.9	0.3	99.9	0.2	99.9
26	0.0	100.0	0.1	100.0	0.1	100.0	0.1	100.0
27	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
28	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
29	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
30	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0
Mean	15.53		17.63		17.31		17.59	
SD	2.24		2.52		2.54		2.35	
Count	2631		6643		11363		13995	
Missing	0		0		0		0	

† Base Exam

* Number of examinations given to examinees

Table 10
Dental Admission Test
Standard Score Analysis
2009

N = 13,995	Number of Items	Mean	S.D.
Quantitative Reasoning	40	15.66	2.79
Reading Comprehension	50	19.40	3.01
Biology	40	17.57	2.69
General Chemistry	30	17.68	3.12
Organic Chemistry	30	17.62	3.57
Survey of the Natural Sciences	100	17.56	2.67
Perceptual Ability	90	18.17	2.92
Academic Average		17.59	2.35

Table 11
Percentage of Dental Schools with Significant ($p \leq .05$) Correlations
Between DAT Scores, Predental GPAs, and First-Year Dental Grades
School Year 2007-2008

	BioMedical Science	Preclinical Operative Technique	First Year GPA
Predental GPAs			
Total	87%	57%	85%
Science	89%	62%	87%
DAT Scores			
Quantitative Reasoning	33%	21%	35%
Reading Comprehension	47%	31%	51%
Biology	71%	27%	63%
General Chemistry	65%	25%	63%
Organic Chemistry	67%	33%	65%
Survey of the Natural Sciences	86%	44%	76%
Perceptual Ability	24%	63%	41%
Academic Average	80%	52%	84%

Table 12
First-Year Class
Median Correlation Coefficients (Pearson R)
School Year 2007-2008

	BioMedical Science	Preclinical Operative Technique	First Year GPA
Pre dental GPAs			
Total	0.37	0.24	0.37
Science	0.40	0.28	0.40
DAT Scores			
Quantitative Reasoning	0.15	0.14	0.19
Reading Comprehension	0.19	0.14	0.21
Biology	0.27	0.16	0.26
General Chemistry	0.27	0.13	0.24
Organic Chemistry	0.31	0.14	0.28
Survey of the Natural Sciences	0.35	0.19	0.34
Perceptual Ability	0.15	0.27	0.21
Academic Average	0.36	0.23	0.36
Multiple R			
DAT	0.45	0.44	0.45
DAT and GPAs	0.58	0.51	0.58

Table 13
Trend in Correlation Coefficients †
Predental GPA and DAT vs National Boards

NBDE Part	2004		2005		2006		2007		2008	
	I	II	I	II	I	II	I	II	I	II
Predental GPAs										
Total	0.322	0.333	0.375	0.361	0.347	0.325	0.337	0.324	0.284	0.315
Science	0.341	0.324	0.398	0.354	0.365	0.323	0.360	0.330	0.308	0.323
N	3330	2491	3593	3006	4333	2926	3843	3499	3980	4006
DAT Scores										
Academic Average	0.464	0.347	0.470	0.359	0.454	0.303	0.481	0.328	0.446	0.330
Survey of the Natural Sciences	0.441	0.287	0.471	0.298	0.441	0.275	0.475	0.280	0.441	0.280
N	3330	2491	3593	3006	4333	2926	3843	3499	3980	4006

† All correlation coefficients are significant at the 0.0001 level.

Table 14
Dental Admission Test
Repeated Exams Analysis
2009

Category	Count
Exams Initially Taken in 2009	8735
1st Time Repeat	3716
2nd Time Repeat	1228
3rd Time Repeat	243
4th Time Repeat	38
5th Time Repeat	17
6th Time Repeat	14
7th Time Repeat	2
8th Time Repeat	2
9th Time Repeat	0
Exams Given in 2009	13995

Table 14
Dental Admission Test
Scores for First Time Test Takers and Repeaters
2009

Subject	First Time Test Takers		Repeaters	
	Mean	Std. Dev.	Mean	Std. Dev.
Quantitative Reasoning	15.79	2.91	15.43	2.56
Reading Comprehension	19.57	3.04	19.11	2.93
Biology	17.58	2.80	17.56	2.49
General Chemistry	17.82	3.26	17.46	2.86
Organic Chemistry	17.75	3.77	17.42	3.20
Survey of the Natural Sciences	17.63	2.81	17.43	2.41
Perceptual Ability	18.09	3.04	18.32	2.71
Academic Average	17.70	2.49	17.40	2.08

Table 15
Dental Admission Test
Quantitative Reasoning by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	3
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	1
5	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	1
7	0.1%	0.0%	0.1%	8
8	0.3%	0.0%	0.1%	19
9	0.6%	0.2%	0.4%	53
10	2.0%	0.9%	1.4%	196
11	4.4%	2.0%	3.2%	433
12	7.3%	3.8%	5.5%	752
13	11.0%	7.2%	9.1%	1246
14	16.8%	13.3%	15.0%	2059
15	14.5%	15.1%	14.8%	2021
16	15.9%	17.0%	16.4%	2252
17	10.7%	13.4%	12.1%	1655
18	7.0%	9.8%	8.4%	1151
19	4.7%	7.1%	5.9%	806
20	1.7%	3.3%	2.5%	341
21	1.5%	2.8%	2.1%	293
22	0.7%	1.7%	1.2%	163
23	0.6%	1.0%	0.8%	107
24	0.1%	0.2%	0.2%	22
25	0.2%	0.6%	0.4%	53
26	0.0%	0.1%	0.1%	7
27	0.1%	0.2%	0.1%	20
28	0.0%	0.0%	0.0%	0
29	0.1%	0.2%	0.2%	22
30	0.0%	0.1%	0.1%	7
	49.1%	50.9%	100.0%	13691
Mean	15.15	16.15	15.66	
SD	2.67	2.81	2.79	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 16
Dental Admission Test
Reading Comprehension by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	3
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	1
8	0.0%	0.0%	0.0%	2
9	0.0%	0.0%	0.0%	3
10	0.1%	0.1%	0.1%	13
11	0.3%	0.2%	0.2%	30
12	0.5%	0.2%	0.3%	46
13	0.9%	0.8%	0.9%	119
14	2.8%	2.3%	2.6%	351
15	4.7%	4.1%	4.4%	602
16	6.8%	6.2%	6.5%	885
17	11.1%	10.6%	10.8%	1485
18	13.9%	12.4%	13.1%	1796
19	14.4%	15.2%	14.8%	2029
20	12.4%	12.4%	12.4%	1696
21	12.0%	12.6%	12.3%	1685
22	6.7%	7.4%	7.1%	970
23	4.5%	5.3%	4.9%	668
24	3.6%	4.3%	4.0%	546
25	2.4%	3.1%	2.7%	373
26	1.5%	1.5%	1.5%	208
27	0.1%	0.2%	0.2%	26
28	1.0%	0.7%	0.9%	122
29	0.0%	0.0%	0.0%	0
30	0.2%	0.2%	0.2%	32
	49.1%	50.9%	100.0%	13691
Mean	19.29	19.52	19.41	
SD	3.01	3.00	3.00	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 17
Dental Admission Test
Biology by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	1
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0
8	0.0%	0.0%	0.0%	0
9	0.1%	0.0%	0.1%	11
10	0.3%	0.2%	0.3%	35
11	1.1%	0.5%	0.8%	106
12	1.7%	1.2%	1.4%	198
13	4.1%	2.2%	3.1%	426
14	7.3%	5.0%	6.1%	841
15	10.2%	7.6%	8.8%	1209
16	15.2%	12.9%	14.0%	1919
17	15.3%	14.7%	15.0%	2055
18	14.0%	15.7%	14.9%	2036
19	11.9%	14.3%	13.1%	1799
20	9.9%	12.6%	11.2%	1540
21	3.5%	4.7%	4.1%	568
22	2.7%	4.1%	3.4%	472
23	0.9%	1.5%	1.2%	166
24	1.2%	1.6%	1.4%	189
25	0.0%	0.0%	0.0%	0
26	0.4%	0.6%	0.5%	70
27	0.1%	0.2%	0.2%	23
28	0.0%	0.0%	0.0%	0
29	0.1%	0.2%	0.1%	16
30	0.0%	0.1%	0.1%	11
	49.1%	50.9%	100.0%	13691
Mean	17.23	17.90	17.57	
SD	2.67	2.68	2.69	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 18
Dental Admission Test
General Chemistry by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	2
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	1
5	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0
7	0.1%	0.0%	0.0%	5
8	0.1%	0.0%	0.1%	7
9	0.3%	0.1%	0.2%	26
10	0.4%	0.3%	0.4%	52
11	1.3%	0.5%	0.9%	118
12	2.7%	1.2%	2.0%	270
13	5.4%	3.2%	4.3%	586
14	7.1%	4.3%	5.7%	776
15	12.6%	8.7%	10.6%	1453
16	12.2%	11.3%	11.8%	1612
17	12.7%	12.9%	12.8%	1752
18	15.4%	16.3%	15.8%	2170
19	10.1%	12.6%	11.4%	1558
20	5.9%	6.6%	6.3%	858
21	5.2%	8.2%	6.7%	918
22	3.4%	5.1%	4.2%	581
23	2.4%	3.8%	3.1%	422
24	1.4%	2.4%	1.9%	265
25	0.4%	0.6%	0.5%	65
26	0.3%	0.5%	0.4%	58
27	0.6%	0.7%	0.6%	86
28	0.0%	0.0%	0.0%	0
29	0.0%	0.1%	0.1%	12
30	0.2%	0.4%	0.3%	38
	49.1%	50.9%	100.0%	13691
Mean	17.21	18.14	17.69	
SD	3.08	3.09	3.12	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 19
Dental Admission Test
Organic Chemistry by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.1%	0.0%	6
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	2
5	0.0%	0.0%	0.0%	2
6	0.0%	0.0%	0.0%	4
7	0.1%	0.0%	0.1%	8
8	0.0%	0.0%	0.0%	4
9	0.4%	0.2%	0.3%	45
10	0.8%	0.5%	0.7%	90
11	2.0%	1.5%	1.7%	239
12	4.3%	2.3%	3.3%	447
13	5.0%	3.7%	4.3%	589
14	8.4%	6.4%	7.4%	1007
15	11.8%	9.3%	10.5%	1438
16	11.3%	10.0%	10.6%	1457
17	11.9%	11.7%	11.8%	1615
18	10.4%	10.4%	10.4%	1418
19	11.5%	12.3%	11.9%	1629
20	7.5%	9.5%	8.5%	1165
21	4.7%	6.8%	5.8%	789
22	3.8%	5.3%	4.6%	626
23	2.7%	4.3%	3.5%	482
24	0.7%	1.4%	1.1%	146
25	0.1%	0.1%	0.1%	14
26	1.3%	2.2%	1.8%	246
27	0.3%	0.7%	0.5%	74
28	0.0%	0.0%	0.0%	3
29	0.1%	0.3%	0.2%	26
30	0.7%	1.0%	0.9%	120
	49.1%	50.9%	100.0%	13691
Mean	17.17	18.08	17.63	
SD	3.47	3.62	3.57	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 20
Dental Admission Test
Survey of the Natural Sciences by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	1
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	1
8	0.0%	0.0%	0.0%	0
9	0.0%	0.0%	0.0%	3
10	0.1%	0.1%	0.1%	15
11	0.6%	0.3%	0.4%	61
12	2.6%	1.2%	1.9%	263
13	4.3%	2.2%	3.2%	442
14	7.8%	5.1%	6.4%	878
15	11.7%	8.8%	10.2%	1397
16	13.8%	12.0%	12.9%	1762
17	15.2%	14.4%	14.8%	2022
18	14.4%	15.0%	14.7%	2019
19	10.6%	13.6%	12.1%	1656
20	9.0%	11.5%	10.3%	1407
21	4.5%	7.1%	5.8%	795
22	2.9%	4.4%	3.7%	500
23	1.1%	2.3%	1.7%	239
24	0.7%	1.2%	0.9%	127
25	0.4%	0.4%	0.4%	52
26	0.1%	0.2%	0.2%	25
27	0.0%	0.1%	0.1%	11
28	0.1%	0.1%	0.1%	10
29	0.0%	0.0%	0.0%	0
30	0.0%	0.1%	0.0%	5
	49.1%	50.9%	100.0%	13691
Mean	17.16	17.94	17.56	
SD	2.65	2.65	2.67	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 21
Dental Admission Test
Perceptual Ability by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	3
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0
8	0.0%	0.0%	0.0%	1
9	0.2%	0.0%	0.1%	12
10	0.3%	0.2%	0.2%	32
11	0.7%	0.4%	0.5%	75
12	2.1%	0.8%	1.4%	198
13	4.1%	1.6%	2.8%	390
14	7.1%	3.2%	5.1%	702
15	9.5%	5.2%	7.3%	996
16	12.1%	8.7%	10.3%	1417
17	14.4%	11.4%	12.9%	1761
18	13.0%	12.1%	12.6%	1722
19	12.8%	16.0%	14.4%	1976
20	9.8%	13.7%	11.8%	1609
21	6.2%	11.0%	8.6%	1184
22	3.9%	6.9%	5.4%	738
23	1.7%	4.0%	2.8%	388
24	1.1%	2.3%	1.7%	238
25	0.6%	1.1%	0.9%	121
26	0.3%	0.9%	0.6%	82
27	0.0%	0.1%	0.0%	6
28	0.1%	0.4%	0.2%	31
29	0.0%	0.0%	0.0%	0
30	0.0%	0.1%	0.1%	9
	49.1%	50.9%	100.0%	13691
Mean	17.52	18.83	18.19	
SD	2.83	2.86	2.92	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 22
Dental Admission Test
Academic Average by Gender
2009

Score	Females	Males	Total	Count
1	0.0%	0.0%	0.0%	0
2	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	1
6	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	2
8	0.0%	0.0%	0.0%	0
9	0.0%	0.0%	0.0%	1
10	0.1%	0.0%	0.0%	6
11	0.4%	0.1%	0.3%	35
12	1.3%	0.4%	0.8%	114
13	3.6%	1.7%	2.6%	361
14	7.0%	3.8%	5.3%	731
15	11.0%	7.3%	9.1%	1247
16	14.6%	12.0%	13.2%	1814
17	17.8%	17.2%	17.5%	2397
18	16.2%	17.4%	16.8%	2298
19	13.0%	16.3%	14.7%	2008
20	7.6%	10.8%	9.2%	1259
21	4.0%	6.4%	5.2%	717
22	1.9%	3.6%	2.8%	378
23	1.0%	1.9%	1.5%	199
24	0.4%	0.7%	0.6%	80
25	0.2%	0.2%	0.2%	31
26	0.0%	0.1%	0.1%	9
27	0.0%	0.0%	0.0%	3
28	0.0%	0.0%	0.0%	0
29	0.0%	0.0%	0.0%	0
30	0.0%	0.0%	0.0%	0
	49.1%	50.9%	100.0%	13691
Mean	17.21	17.97	17.60	
SD	2.34	2.31	2.35	
Count *	6717	6974	13691	

* Number of examinations given to examinees

Table 23
Dental Admission Test
Quantitative Reasoning by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	1
7	0.0%	0.0%	0.6%	0.1%	0.0%	0.1%	8
8	0.0%	0.1%	0.8%	0.6%	0.1%	0.2%	20
9	0.0%	0.3%	1.4%	1.4%	0.2%	0.4%	51
10	3.9%	0.7%	5.7%	5.0%	0.8%	1.4%	185
11	3.9%	1.9%	11.8%	7.7%	2.2%	3.1%	410
12	11.8%	3.4%	15.0%	12.0%	4.7%	5.6%	731
13	15.7%	5.7%	19.3%	14.9%	8.8%	9.1%	1190
14	13.7%	10.9%	20.1%	20.4%	15.7%	15.0%	1971
15	21.6%	11.1%	12.6%	14.0%	16.7%	14.7%	1935
16	9.8%	14.9%	6.6%	9.9%	18.8%	16.3%	2138
17	9.8%	13.7%	3.0%	6.5%	13.2%	12.2%	1602
18	2.0%	12.1%	1.5%	4.1%	8.0%	8.4%	1104
19	3.9%	9.5%	0.7%	1.8%	5.3%	5.9%	771
20	3.9%	3.9%	0.2%	0.6%	2.3%	2.5%	330
21	0.0%	4.6%	0.1%	0.4%	1.4%	2.1%	281
22	0.0%	2.7%	0.0%	0.2%	0.8%	1.2%	162
23	0.0%	1.8%	0.1%	0.1%	0.5%	0.8%	103
24	0.0%	0.5%	0.0%	0.0%	0.1%	0.2%	22
25	0.0%	1.2%	0.0%	0.0%	0.1%	0.4%	53
26	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	7
27	0.0%	0.4%	0.0%	0.0%	0.1%	0.1%	18
28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
29	0.0%	0.5%	0.0%	0.0%	0.0%	0.2%	21
30	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	7
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	14.55	16.81	13.25	13.94	15.62	15.67	
SD	2.37	3.16	2.21	2.40	2.41	2.80	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 24
Dental Admission Test
Reading Comprehension by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1
8	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	2
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3
10	0.0%	0.1%	0.1%	0.3%	0.1%	0.1%	13
11	0.0%	0.3%	1.1%	0.6%	0.1%	0.2%	31
12	0.0%	0.5%	0.8%	1.6%	0.1%	0.4%	48
13	0.0%	1.0%	3.9%	1.6%	0.4%	0.9%	116
14	0.0%	3.7%	6.7%	4.9%	1.4%	2.6%	343
15	7.8%	6.4%	8.9%	9.5%	2.4%	4.4%	580
16	7.8%	7.8%	10.6%	10.5%	5.0%	6.5%	856
17	17.6%	12.8%	16.2%	13.5%	9.0%	10.9%	1425
18	11.8%	13.8%	14.9%	11.8%	12.6%	13.0%	1709
19	13.7%	13.4%	14.4%	15.1%	15.7%	14.9%	1960
20	15.7%	10.6%	6.2%	9.0%	14.4%	12.5%	1636
21	9.8%	10.4%	6.9%	7.7%	13.9%	12.0%	1578
22	3.9%	6.8%	3.7%	5.3%	7.8%	7.1%	931
23	2.0%	3.8%	2.5%	2.4%	6.1%	5.0%	650
24	0.0%	3.2%	1.8%	2.1%	4.8%	4.0%	523
25	2.0%	2.4%	0.6%	2.1%	3.1%	2.7%	353
26	3.9%	1.6%	0.5%	0.6%	1.6%	1.5%	193
27	0.0%	0.1%	0.1%	0.1%	0.3%	0.2%	24
28	2.0%	1.2%	0.0%	0.6%	0.9%	0.9%	117
29	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
30	2.0%	0.2%	0.0%	0.3%	0.2%	0.2%	30
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	19.31	19.01	17.71	18.25	19.90	19.39	
SD	3.27	3.11	2.80	3.13	2.83	3.01	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 25
Dental Admission Test
Biology by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
9	0.0%	0.0%	0.0%	0.3%	0.1%	0.1%	8
10	0.0%	0.2%	1.0%	0.4%	0.2%	0.3%	36
11	2.0%	0.6%	3.0%	2.4%	0.4%	0.8%	101
12	2.0%	1.1%	5.0%	2.8%	1.1%	1.5%	194
13	7.8%	2.0%	8.6%	6.6%	2.6%	3.1%	411
14	5.9%	4.5%	14.8%	10.3%	5.5%	6.1%	804
15	13.7%	6.4%	14.1%	11.9%	9.0%	8.8%	1160
16	15.7%	11.0%	18.5%	19.3%	14.3%	14.0%	1843
17	21.6%	14.1%	12.5%	13.6%	16.0%	15.1%	1988
18	9.8%	14.8%	10.3%	11.5%	15.8%	14.8%	1949
19	11.8%	14.7%	6.3%	9.1%	13.5%	13.1%	1715
20	3.9%	14.6%	4.2%	6.4%	11.1%	11.3%	1479
21	3.9%	5.4%	0.7%	2.8%	4.0%	4.1%	537
22	0.0%	5.4%	0.4%	1.3%	3.1%	3.4%	450
23	0.0%	1.8%	0.2%	0.5%	1.1%	1.2%	158
24	2.0%	2.0%	0.2%	0.5%	1.3%	1.4%	178
25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
26	0.0%	0.7%	0.2%	0.1%	0.5%	0.5%	65
27	0.0%	0.3%	0.0%	0.1%	0.1%	0.2%	23
28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
29	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	15
30	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%	11
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	16.61	18.19	15.72	16.41	17.62	17.57	
SD	2.48	2.74	2.48	2.60	2.56	2.69	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 26
Dental Admission Test
General Chemistry by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
7	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	5
8	0.0%	0.0%	0.2%	0.3%	0.0%	0.1%	7
9	0.0%	0.1%	1.2%	0.4%	0.1%	0.2%	25
10	0.0%	0.2%	1.7%	1.1%	0.2%	0.4%	49
11	2.0%	0.4%	2.7%	2.6%	0.6%	0.9%	112
12	3.9%	0.9%	7.7%	3.4%	1.7%	2.0%	263
13	13.7%	2.7%	11.4%	8.2%	3.7%	4.3%	558
14	7.8%	3.4%	14.2%	9.4%	5.4%	5.7%	751
15	13.7%	6.9%	15.9%	16.3%	11.0%	10.5%	1384
16	9.8%	8.6%	15.0%	15.0%	12.4%	11.7%	1537
17	17.6%	11.2%	10.8%	12.9%	13.9%	12.9%	1692
18	5.9%	15.3%	9.8%	13.7%	17.2%	15.9%	2087
19	11.8%	13.0%	4.6%	7.1%	11.9%	11.4%	1498
20	5.9%	7.9%	2.1%	3.1%	6.1%	6.2%	808
21	2.0%	8.7%	0.7%	3.2%	6.9%	6.7%	880
22	5.9%	7.4%	0.6%	1.6%	3.4%	4.2%	553
23	0.0%	5.6%	0.5%	0.5%	2.6%	3.1%	411
24	0.0%	3.7%	0.2%	0.6%	1.4%	1.9%	253
25	0.0%	0.9%	0.1%	0.1%	0.4%	0.5%	62
26	0.0%	0.7%	0.0%	0.2%	0.3%	0.4%	54
27	0.0%	1.3%	0.1%	0.1%	0.5%	0.7%	86
28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
29	0.0%	0.2%	0.0%	0.0%	0.1%	0.1%	11
30	0.0%	0.6%	0.0%	0.1%	0.2%	0.3%	37
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	16.37	18.80	15.22	16.15	17.63	17.69	
SD	2.80	3.29	2.63	2.82	2.87	3.12	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 27
Dental Admission Test
Organic Chemistry by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	6
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	2
5	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	2
6	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	4
7	0.0%	0.0%	0.2%	0.0%	0.1%	0.1%	7
8	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	3
9	0.0%	0.3%	1.0%	0.6%	0.2%	0.3%	42
10	2.0%	0.3%	2.4%	1.2%	0.5%	0.6%	82
11	5.9%	0.9%	5.8%	3.0%	1.6%	1.8%	236
12	5.9%	1.7%	9.7%	5.5%	3.0%	3.3%	427
13	5.9%	2.7%	10.0%	6.6%	4.2%	4.3%	566
14	15.7%	5.3%	13.2%	11.3%	7.3%	7.4%	976
15	11.8%	7.9%	14.5%	13.3%	11.1%	10.6%	1387
16	13.7%	8.9%	11.4%	13.6%	11.0%	10.7%	1399
17	11.8%	10.9%	10.8%	10.3%	12.5%	11.8%	1548
18	7.8%	10.5%	8.6%	9.0%	10.6%	10.3%	1352
19	5.9%	12.7%	5.8%	10.4%	12.1%	11.7%	1541
20	3.9%	10.8%	2.1%	6.2%	8.5%	8.5%	1118
21	5.9%	7.7%	1.5%	2.1%	5.7%	5.7%	754
22	2.0%	6.5%	1.5%	2.9%	4.3%	4.6%	602
23	0.0%	5.5%	0.6%	1.2%	3.3%	3.5%	465
24	0.0%	1.8%	0.0%	0.7%	1.0%	1.1%	144
25	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	13
26	0.0%	2.6%	0.1%	1.1%	1.7%	1.8%	235
27	0.0%	0.9%	0.0%	0.0%	0.5%	0.5%	71
28	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	3
29	0.0%	0.2%	0.1%	0.0%	0.2%	0.2%	25
30	2.0%	1.6%	0.1%	0.4%	0.7%	0.9%	115
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	16.04	18.64	15.15	16.32	17.60	17.63	
SD	3.50	3.66	2.95	3.35	3.43	3.58	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 28
Dental Admission Test
Survey of the Natural Sciences by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1
8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2
10	0.0%	0.1%	0.2%	0.3%	0.1%	0.1%	14
11	0.0%	0.2%	2.1%	1.3%	0.3%	0.5%	60
12	5.9%	1.2%	8.8%	4.8%	1.1%	1.9%	253
13	7.8%	1.9%	8.9%	6.2%	2.9%	3.3%	430
14	9.8%	4.0%	14.8%	11.4%	6.0%	6.4%	837
15	9.8%	6.8%	18.1%	14.1%	10.5%	10.2%	1344
16	17.6%	9.9%	18.1%	16.9%	13.3%	12.9%	1696
17	17.6%	12.7%	11.0%	14.1%	16.1%	14.7%	1929
18	13.7%	14.4%	9.5%	12.1%	16.0%	14.8%	1946
19	9.8%	14.5%	3.6%	8.9%	12.4%	12.2%	1595
20	2.0%	13.1%	2.6%	4.9%	10.2%	10.1%	1325
21	2.0%	8.9%	1.2%	2.1%	5.3%	5.8%	763
22	2.0%	6.3%	0.4%	1.8%	3.0%	3.6%	478
23	0.0%	2.9%	0.5%	0.4%	1.5%	1.8%	230
24	2.0%	1.7%	0.1%	0.2%	0.7%	0.9%	122
25	0.0%	0.7%	0.0%	0.2%	0.3%	0.4%	52
26	0.0%	0.3%	0.0%	0.0%	0.1%	0.2%	23
27	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%	10
28	0.0%	0.2%	0.0%	0.0%	0.1%	0.1%	10
29	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
30	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	5
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	16.43	18.41	15.42	16.29	17.55	17.56	
SD	2.54	2.73	2.29	2.50	2.50	2.67	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 29
Dental Admission Test
Perceptual Ability by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
8	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	1
9	0.0%	0.1%	0.4%	0.3%	0.0%	0.1%	11
10	0.0%	0.1%	1.2%	0.5%	0.1%	0.2%	30
11	0.0%	0.3%	2.5%	1.3%	0.4%	0.5%	72
12	2.0%	1.0%	7.4%	2.2%	1.0%	1.5%	194
13	5.9%	1.6%	10.8%	6.1%	2.2%	2.9%	376
14	7.8%	3.7%	15.3%	8.9%	4.1%	5.1%	667
15	17.6%	5.9%	15.0%	13.4%	6.3%	7.3%	956
16	13.7%	9.2%	15.7%	14.5%	9.8%	10.4%	1364
17	19.6%	10.9%	12.9%	13.1%	13.5%	12.8%	1677
18	3.9%	11.9%	9.1%	11.3%	13.4%	12.5%	1643
19	15.7%	15.2%	5.1%	11.3%	15.5%	14.4%	1896
20	7.8%	12.8%	2.6%	7.7%	12.8%	11.8%	1544
21	2.0%	11.1%	0.4%	4.8%	9.0%	8.7%	1142
22	2.0%	6.8%	0.7%	2.1%	5.7%	5.4%	711
23	0.0%	3.7%	0.6%	1.6%	2.8%	2.8%	372
24	2.0%	2.8%	0.1%	0.4%	1.6%	1.7%	229
25	0.0%	1.1%	0.1%	0.0%	1.0%	0.9%	117
26	0.0%	0.9%	0.0%	0.4%	0.5%	0.6%	77
27	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	6
28	0.0%	0.4%	0.0%	0.1%	0.2%	0.2%	29
29	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
30	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	9
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	16.84	18.79	15.38	16.87	18.39	18.19	
SD	2.49	2.94	2.46	2.78	2.75	2.92	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Table 30
Dental Admission Test
Academic Average by Ethnicity
2009

Score	American Indian	Asian	Black	Hispanic	White	Total	Count
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
5	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1
6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
9	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1
10	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	5
11	0.0%	0.2%	1.3%	1.1%	0.1%	0.3%	36
12	2.0%	0.4%	4.4%	2.9%	0.4%	0.8%	111
13	7.8%	1.8%	10.7%	8.4%	1.4%	2.7%	348
14	7.8%	3.6%	17.6%	10.5%	4.1%	5.3%	695
15	9.8%	6.0%	20.0%	15.3%	8.7%	9.2%	1204
16	23.5%	10.0%	18.1%	17.7%	13.7%	13.3%	1746
17	21.6%	14.8%	13.9%	16.5%	19.2%	17.5%	2294
18	9.8%	16.7%	7.3%	11.5%	18.6%	16.8%	2208
19	11.8%	16.8%	4.1%	8.2%	15.5%	14.6%	1914
20	2.0%	12.3%	1.2%	4.1%	9.2%	9.2%	1202
21	0.0%	8.7%	0.8%	2.0%	4.6%	5.3%	691
22	2.0%	4.4%	0.0%	0.9%	2.5%	2.7%	360
23	0.0%	2.5%	0.2%	0.2%	1.2%	1.4%	189
24	0.0%	1.2%	0.0%	0.4%	0.4%	0.6%	78
25	2.0%	0.5%	0.0%	0.0%	0.1%	0.2%	29
26	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	9
27	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	3
28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
29	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
30	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
	0.4%	27.5%	6.4%	7.2%	58.5%	100.0%	13125
Mean	16.57	18.30	15.40	16.20	17.67	17.59	
SD	2.34	2.42	2.01	2.34	2.13	2.35	
Count *	51	3612	839	940	7683	13125	

* Number of examinations given to examinees

Figure 1
Survey of the Natural Sciences
Biology Content Specifications
40 items

I. Cell and Molecular Biology (13)

- A. Origin of Life
- B. Cell metabolism (including photosynthesis)/ Enzymology
- C. Cellular Processes
- D. Thermodynamics
- E. Organelle structure and function
- F. Mitosis / Meiosis
- G. Cell structure
- H. Experimental cell biology

II. Diversity of Life: Biological Organization and Relationship of Major Taxa (Five-Kingdom System) (3)

- A. Monera
- B. Plantae
- C. Animalia
- D. Protista
- E. Fungi
- F. Etc.

III. Vertebrate Anatomy and Physiology: Structure and Function of Systems (9)

- A. Integumentary
- B. Skeletal
- C. Muscular
- D. Circulatory
- E. Immunological
- F. Digestive
- G. Respiratory
- H. Urinary
- I. Nervous/senses
- J. Endocrine
- K. Reproductive

IV. Developmental Biology (4)

- A. Fertilization
- B. Descriptive embryology
- C. Developmental mechanisms
- D. Experimental embryology

V. Genetics (7)

- A. Molecular genetics
- B. Human genetics
- C. Classical genetics
- D. Chromosomal genetics
- E. Genetic technology

VI. Evolution, Ecology, and Behavior (4)

- A. Natural Selection
- B. Population genetics/Speciation
- C. Cladistics
- D. Population and community ecology
- E. Ecosystems
- F. Animal behavior (including social)

Figure 2
Survey of the Natural Sciences
General Chemistry Content Specifications
30 items

- I. Stoichiometry and General Concepts (3)**
 - A. Percent composition
 - B. Empirical formulae
 - C. Balancing equations
 - D. Moles and molecular formulas
 - E. Molar mass
 - F. Density
 - G. Calculations from balanced equations
- II. Gases (2)**
 - A. Kinetic molecular theory of gases
 - B. Dalton's gas law
 - C. Boyle's gas law
 - D. Charles's gas law
 - E. Ideal gas law
- III. Liquids and Solids (3)**
 - A. Intermolecular forces
 - B. Phase changes
 - C. Vapor pressure
 - D. Structures
 - E. Polarity
 - F. Properties
- IV. Solutions (3)**
 - A. Polarity
 - B. Properties
 - 1. Colligative
 - 2. Non-colligative
 - C. Forces
 - D. Concentration calculations
- V. Acids and Bases (3)**
 - A. pH
 - B. Strength
 - C. Brønsted-Lowry reactions
 - D. Calculations
- VI. Chemical Equilibria (2)**
 - A. Molecular
 - B. Acid/base
 - C. Precipitation
 - D. Calculations
 - E. Le Chatelier's principle
- VII. Thermodynamics and Thermochemistry (2)**
 - A. Laws of thermodynamics
 - B. Hess's law
 - C. Spontaneity
 - D. Enthalpies and entropies
 - E. Heat transfer
- VIII. Chemical Kinetics (2)**
 - A. Rate Laws
 - B. Activation Energy
 - C. Half-life
- IX. Oxidation-Reduction Reactions (2)**
 - A. Balancing equations
 - B. Determination of oxidation numbers
 - C. Electrochemical calculations
 - D. Electrochemical concepts and terminology
- X. Atomic and Molecular Structure (3)**
 - A. Electron configuration
 - B. Orbital types
 - C. Lewis-Dot diagrams
 - D. Atomic theory
 - E. Quantum theory
 - F. Molecular geometry
 - G. Bond types
 - H. Sub-atomic particles
- XI. Periodic Properties (2)**
 - A. Representative elements
 - B. Transition elements
 - C. Periodic trends
 - D. Descriptive chemistry
- XII. Nuclear Reactions (1)**
 - A. Balancing equations
 - B. Binding energy
 - C. Decay processes
 - D. Particles
 - E. Terminology
- XIII. Laboratory (2)**
 - A. Basic Techniques
 - B. Equipment
 - C. Error analysis
 - D. Safety
 - E. Data analysis

Figure 3
Survey of the Natural Sciences
Organic Chemistry Content Specifications
30 items

- I. Mechanisms: Energetics Structure, and Stability of Intermediates (5)**
- A. S_N1
 - B. S_N2
 - C. Elimination
 - D. Addition
 - E. Free radical
 - F. Substitution mechanisms
- II. Chemical and Physical Properties of Molecules and Organic Analysis (5)**
- A. Inter- and intra-molecular forces
 - B. Separation
 - C. Introductory infrared spectroscopy
 - D. ¹H NMR spectroscopy
 - E. ¹³C NMR
 - F. Chemical identification
 - G. Stability
 - H. Solubility
 - I. Polarity
- III. Stereochemistry (3)**
- A. Conformational analysis
 - B. Geometric isomers
 - C. Stereoisomers (Enantiomers, Diastereomers, Meso compounds)
 - D. Optical activity (Planes of Symmetry)
- IV. Nomenclature (2)**
- A. IUPAC rules
 - B. Functional groups in molecules
- V. Individual Reactions of the Major Functional Groups and Combinations of Reactions to Synthesize Compounds (9)**
- A. Carbon-to-carbon bond formation
 - B. Functional groups conversions
 - C. Multistep synthesis
 - D. Redox reactions
 - E. Name reactions
 1. Grignard
 2. Wittig
 3. Deils-Alder
 4. Aldol reaction
- VI. Acid-Base Chemistry (3)**
- A. Resonance effects
 - B. Inductive effects
 - C. Prediction of products and equilibria
- VII. Aromatics and Bonding (3)**
- A. Concept of aromaticity
 - B. Resonance
 - C. Atomic/molecular orbitals
 - D. Hybridization
 - E. Bond angles/lengths

Figure 4
Quantitative Reasoning
Content Specifications
40 items

- I. Mathematics Problems (30)**
 - A. Algebra (9)**
 - 1. Equations and expressions
 - 2. Inequalities
 - 3. Exponential notation
 - 4. Absolute value
 - 5. Ratios and proportions
 - 6. Graphical analysis
 - B. Numerical calculations (6)**
 - 1. Fractions and decimals
 - 2. Percentages
 - 3. Approximations
 - 4. Scientific notation
 - C. Conversions (3)**
 - 1. Temperature
 - 2. Time
 - 3. Weight
 - 4. Distance
 - D. Probability and statistics (4)**
 - E. Geometry (4)**
 - F. Trigonometry (4)**
- II. Applied Mathematics (Word) Problems (10)**

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