

# TEST SCORING USER GUIDE

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## **Overview of the Test Scoring System**

Input for the Test Scoring System is a specially designed answer sheet that is processed by a reflective read Optical Mark Recognition Scanner.

The form has blocks for entering Last name, First name, Middle initial, Student ID, Class Section, and Test Form number. The backside of the form accommodates up to 200 questions with answer choices of A through E.

## **Grade Reports**

Four types of grade reports are available.

1. Alphabetical Report Listing
2. Student Summary with Key
3. Statistical Summary
4. Item Analysis per Question

We always transmit grade report files electronically to the instructor's provided email account. You may also choose to receive printouts. These are returned via Campus Mail to the address requested on the Work Order along with all test forms.

## **Optional Features**

You can specify up to five sub-sections that will have scores displayed separately from the overall score.

You can assign answers to have varying point values.

You can assign more than one answer to be correct. However, only one answer may be bubbled per question.

You can eliminate questions from scoring.

You can assign bonus points (extra credit) for a correct answer, with no penalty for incorrect answers.

## **Processing Time**

Please allow 24 hours for your exam to be processed and to receive the grade reports via email. Normally we returns exams and optional printouts via Campus

Mail within 48 hours after you submit to Printing & Mailing. Processing may take longer, particularly during Finals weeks.

## **Scheduling**

Exams are processed in the order that they are received at 4700 SW Research Way.

## **Costs**

The cost to process an exam is \$31.50 plus \$0.15 per sheet scanned as of September 2017.

Your department index number is required to purchase blank sheets or process exams.

## **Purchasing Forms**

You can obtain blank testing forms over the counter at XPress Stop (MU 61) or 4700 SW Research Way, or you can order them through our web site at <http://printmail.oregonstate.edu/webform/scan-sheet-order-form>

## **Procedures for Submitting Exams**

When a test package is delivered to the Test Scoring Services, it must contain:

1. A completed Test Scoring Work Order form
2. Exam Key(s)
3. Student answer sheets

## **Preparing Answer Sheets**

Only the specially designed answer sheets provided by Test Scoring Services may be used. Photocopies will not work.

The large orange shaded blocks on the front and back sides of the answer sheet are provided for instructor or student use. For example, you could number each student's answer sheet in this area. The scanner does not read marks in these areas.

Please ensure answer sheets are not damaged. Holes from staples, 3-hole-punches, and water damage can cause sheets to be unable to be scanned

Multiple choice questions must have no more than five choices and these choices must be coded A through E.

The scanner reads reflective optical marks and only a number 2 or softer lead pencil can be used. The optical scanner can distinguish between 256 levels of gray, so erasure marks will be treated as such. Ball point pen and marker-type pencils cannot be used.

A student may mark only one answer to each question. If the student's form has multiple answers bubbled, it will output an asterisk \* to the data record, and that response will be counted as incorrect.

If you choose to group results by Class Sections and/or multiple Exam Keys, students must bubble the circles corresponding to CLASS SEC and/or TEST FORM NO.

### **Preparing the Exam Key**

Use a standard answer sheet to prepare your EXAM KEY.

In the LAST NAME block, bubble the letters EXAM KEY. Make sure you leave a space between the word EXAM and the word KEY. No other marks should be made in the LAST NAME or FIRST NAME blocks.

If using multiple Exam Keys, bubble the TEST FORM NO. for each key.

Fill the correct answers on side 2 of the Exam Key sheet. If a question has more than one correct answer, mark only one answer. Use Option 12 - Partial Credit on the Test Scoring Work Order to assign values to each correct answer.

### **Preparing Keys for Multiple Test Forms**

You can offer multiple versions of a test and scramble the questions on each of them. In this case, you must complete an EXAM KEY for each version of the test.

You may have up to nine Exam Keys per exam.

Bubble the TEST FORM NO. in the space provided on the front of each Exam Key. Exam Keys do not need to be consecutive in sequence, but there must be an Exam Key 1. Students must bubble their TEST FORM NO. to receive grade results.

## **Preparing Forms for Scoring**

Always ensure that the corner cuts on the forms are in alignment at the bottom-right. This ensures no forms are backwards or upside down in the stack.

You may choose to put each Exam Key in a separate stack with the corresponding student answer sheets. This helps to ensure all tests are processed successfully, even when students forget to bubble their Exam Key. We can use a SET FORM to override the TEST FORM NO. in each stack. This process is described below under “Using SET FORMs”.

## **Grade Reports Separated by Class Section or Exam Key**

If students have clearly marked the CLASS SEC or TEST FORM NO. on their answer sheets, no special preparation is required.

If a student has not properly filled in the CLASS SEC, the scoring software will assign the student to Class Section 000 and group their score in this section.

If a student has not properly filled in the TEST FORM NO., the scoring software will not grade their exam. This rejection will be noted on the grade report.

## **Using SET FORMs**

If students have not marked the CLASS SEC or TEST FORM NO. on their answer sheets, you can put the answer sheets in separate stacks. We can use a SET FORM to override the numbers in each stack.

1. Put answer sheets into one group per Exam Key or Class Section.
2. Rubber band or otherwise separate each group.
3. Mark each group with its corresponding Exam Key or Class Section.  
Post-it notes are acceptable.
4. You can request this service by writing “USE SET FORM” under Special Instructions on the Test Scoring Work Order.

When answer sheets are grouped this way, the Test Scoring personnel will use a special scan sheet called a SET FORM that will assign every test to match the specified Exam Key or Class Section.

It is important that student answer sheets be placed in the correct batch because the SET FORM will override the numbers for all answer sheets in the stack, whether

or not the number is correct. A sheet placed in the wrong batch can potentially be scored with the wrong EXAM KEY.

The advantage to using SET FORMs is that all tests will be graded and organized, even if students do not mark their TEST FORM NO. or CLASS SEC.

### **Completing the Test Scoring Work Order**

- Instructor Name:** Print the name you wish printed on the test results.
- Course Number:** Print the course number as it appears in the Schedule of Classes. For example, BA 131
- E-mail Address:** Print up to three OSU or ONID email addresses.
- Dept. Index:** Your department assigns this number. It is required for billing purposes. We cannot score your test without a valid Index Number.

### **SECTION A: Report Selection (Options 01-04)**

Circle whether you want printed reports, electronic files only, or both. Information you provide in this section will determine which reports you receive and how they are grouped.

- Circling **A** will display all reports alphanumerically.
- Circling **B** will display reports grouped by Class Section.
- Circling **C** will display reports grouped by Exam Key.
- Circling **D** will display reports grouped by Exam Key and Class Section.

You may select any or all report items. For example, you can circle both **A** and **B** to receive two grade report emails. The first will display grades alphanumerically, and the second will display grades grouped by Class Section.

### **Option 01: Alphabetical Report Listing**

This is list of student names with their overall score. If you specify any Sub Sections (Option 10), they will be displayed here as well.

If a student forgets to bubble their name, the system automatically generates a name for them.

### **Option 02: Student Summary with Key**

By default, this will display as a condensed version that fits as many students on a page as possible. Alternatively, you can choose to display one student per page.

### **Option 03: Statistical Summary**

This section displays a variety of useful statistics that are explained in Appendix A.

### **Option 04: Item Analysis per Question**

The Item Analysis always displays Exam Keys separately. At the end there is also a summary including all tests. There is no option to group by class section.

## **SECTION B: Electronic File Selection (Options 05-07)**

### **Option 05: Raw Data File**

Option 05 provides you with a file containing raw data as read by the scanner. This .DAT file does not include scores. The file is not delimited.

### **Option 06: CSV Spreadsheet**

Option 06 provides you with a file containing Test Score information in a spreadsheet compatible with Excel. This file is delimited and organized in the following order:

Last Name / First Name / Middle Initial / OSU ID# / Form# / Section# / Raw Score / % Score / Sub Section 1-5 % Score.

### **Option 07: Grade Report**

Option 07 allows you to receive a Word doc, PDF, or both. These files contain the Reports you select under Options 01-04.

## **SECTION C: Scoring Parameters (Options 08-09)**

These sections assign a total number of points for the test. Completion of these sections is required.

### **Option 08: Default Points per Question**

Decimal values are permitted in tenths, but not hundredths. The maximum value that can be assigned a question is 99.9.

### **Option 09: Range of Questions**

Up to nine Exam Keys may be used. Please write the questions to grade for each of them. The range does not have to be identical for every Exam Key. However, each Exam Key must have the same total number of points.

For example: Exam Key 1 can be 1-20, while Exam Key 2 can be 1-10,21-30.

If you are using multiple Exam Keys, the TEST FORM NO. must be bubbled on each of them.

### **SECTION D: Question Lists (Options 10-14)**

The questions listed in these sections can include individual question numbers in a string, separated by commas. Leading zeros are not required. For example: 1,7,10,23,195. The questions lists can also include a range. For example: 1-20.

Both of these techniques may be included in the same question list. The question numbers do not need to be consecutive, but it is generally helpful to list the questions in ascending order. For example: 1,7,10,24,50-75,88,90-100,195,198.

If there is insufficient room to enter your parameters, please attach a separate sheet.

### **Option 10: Sub-Sections**

Option 10 allows you to divide a test into up to five separate sections that will have % scores separated from the total score.

You may, for example, wish to compute separate scores for lecture questions, lab questions, true/false questions, and reading assignment questions.

### **Option 11: Variable Points**

Option 11 allows you to override the default point value assigned in Option 09.



For example, suppose a test has 40 questions worth 2 points each, for a total of 80 possible points. You can use the variable points option to say questions 31-40 are worth 4 points each. As a result, the test would have a total of 100 possible points.

### **Option 12: Partial Credit**

Option 12 assigns points to questions with more than one correct answer. Only one answer may be bubbled per question on each test form, including the Exam Key.

Assign points by writing all correct answers with their associated point value. For example: A=2,B=3,E=1.

You do not need to assign zero points to incorrect answers.

Note that Report 04 - Item Analysis - will only consider the answer marked on the Exam Key to be correct. For this reason, the answer marked on the Exam Key should be the best answer, IE, worth the highest amount of possible points.

### **Option 13: Throw Out Items**

Option 13 assigns point values to questions included in Option 09: Range of Questions. All students will receive the specified point value, even if no answer is bubbled. Zero is acceptable. The question must be bubbled on the Exam Key.

The specified question(s) will still be included on the Statistical Summary, Item Analysis, and total score. If you do not want Throw-Out questions to be included in the grade report, simply remove them from Option 09: Range of Questions.

### **Option 14: Extra Credit**

Option 14 assigns bonus points for a correct answer. Students will not be penalized for an incorrect answer.

This will decrease the total number of points possible. Suppose an exam has 20 questions worth 5 points each for a total of 100 points possible. If question 20 is Extra Credit, the total points would decrease to 95. However, if a student answers all questions correctly, they would receive 100 out of 95 points (105%).

## **Appendix A: Explanation of Statistics**

**Raw Score:** This is the total number of points a student earned on the test.

**%:** The percentage score is the student's score converted to a scale of 0 to 100. For a test with 100 possible points, the student's percentage is identical to their test score.

**%TILE:** This is a statistical conversion of the raw test score. The percentile rank of a test score indicates what percent of the class scores are lower than that particular score. So if a student has a percentile score of 92, he scored higher than 92% of the total group tested.

**Z-Score or Standard Score:** The Z-score, like the percentage score, is a mathematical conversion of the student's test score. The Z-score conversion changes all student test scores to a scale where the class mean is zero and the standard deviation is one. Z-score tells how many standard deviations above or below the class mean that the score lies. For example, a Z-score of -0.5 is one-half a standard deviation below the mean for the class.

Because every distribution of Z-scores has the same mean (0) and standard deviation (1), a student's Z-score on several tests can be directly compared with each other. But the fact that Z-scores range from -3.00 to +3.00 is confusing to some people. For this reason the T-score is usually used instead.

**T-Score:** The T-score, like the Z-score, is a normalized standard score. The difference between the two is that the class distribution of T-scores has a mean of 50 and a standard deviation of 10. Because it is a normalized standard score, the T-score has several useful properties:

- a. Internals between scores tend to be equalized, so that the difference between 65 and 70 is much the same as the difference between 50-55.
- b. Because of the equal interval scale, scores from successive tests of different lab sections can be meaningfully compared, added, or averaged.
- c. The distribution of T-scores is predictable, so grading on a strict curve is possible without sacrificing fairness. Normally about 2/3rds of a class will score between 40 and 60 or about 5/6ths of the class will score above 40. The pass-fail cutoff is usually set between 35 and 40.

**Stanine:** A stanine is a standard score on a scale of 1 to 9. The stanine scale has a mean of 5 and a standard deviation of 2. Each stanine corresponds to a range of percentiles:

<b>Stanine</b>	<b>Percentile</b>
<b>9</b>	<b>97-99</b>
<b>8</b>	<b>90-96</b>
<b>7</b>	<b>78-89</b>
<b>6</b>	<b>61-77</b>
<b>5</b>	<b>40-60</b>
<b>4</b>	<b>23-39</b>
<b>3</b>	<b>11-22</b>
<b>2</b>	<b>4-10</b>
<b>1</b>	<b>1-3</b>

**Median:** The median is the middle score in the group. The median, like the mean, is a measure of “central tendency”. If there is an even number of scores, the mean value of the two closest to the middle is considered the median score.

**Standard Deviation:** The standard deviation is an index of how the class scores are distributed (their “dispersion”). With the mean and the standard deviation, you can get a pretty good idea of how the scores are distributed.

**Top 27%-Bottom 27%:** This figure has been shown to statistically be the best cutoff point for the high and low groups to simulate the total class distribution.

**Difficulty Index (Diff Index):** The difficulty index is the percentage of students who chose the correct answer, expressed in a decimal form. A difficulty index of 0 means that nobody in the class chose the right answer, and an index of 1.00 means everybody chose the correct answer.

Because of student guessing, the number of possible choices affects the difficulty index of an item. Here are some rules for selecting items based on difficulty:

- a. For a true-false question, the difficulty index should fall between .60 and .95 to maximize discrimination.
- b. For a three-choice multiple choice item, the difficulty index should be between .45 and .90.
- c. For an item with four or more choices, the difficulty index should be between .35 and .85.

**Discrimination Index (Disc Index):** The discrimination index indicates how well the item discriminates the better students from the poorer students in a class. In general, the larger the positive value of the discrimination index, the more discriminating the question. We look for items that students with high overall scores answered correctly, and that low-scoring students answered incorrectly. Such items are considered to have a high discrimination index because they, like the test as a whole, discriminates students based on overall performance.

**T-Value:** The T-Value tells you how good a question is. Higher T-Values indicate better student understanding of the subject, as low-scoring students do not respond correctly as often as high scoring students.