1. Purpose
This procedure describes the steps to be followed for adjustment of Course grades, should an adjustment be deemed necessary.

2. Related Policy/Authority
BCOM operational organization, and the direction of the Dean/CAO, gives the authority to adjust course grades to the Office of Pre-Clinical Education in consultation with the Director of the course in question.

3. Faculty/Staff Responsibilities
Course Directors/Pre-Clinical Education Deans - follow the procedure described below in determining whether any course adjustment is warranted, and to carry out adjustments when necessary. All Testing Center procedures regarding communication and implementation of decisions in the scoring of exams (individual exam items) will continue as currently described, will be completed before course adjustments are considered, and will not affect the decision to adjust course grades.

4. Definitions/Abbreviations
   Learning Management System (LMS) – The LMS is the on-line electronic program used to deliver curricular information, including grades, to the students enrolled in academic coursework.
   Examination Item - a question prepared and submitted for use as part of a graded assessment tool (examination, test, quiz, or other).
   Z-scoring – a statistical method for standardizing a group of scores which relies on the calculation of mean and standard deviation to determine an appropriate adjustment to the score.

5. Procedural Steps
Grade adjustments will be made to course grades, and not to individual assessment (quizzes, exams, etc.) grades. Thus, at the termination of a course, after all graded events have been scored, the outcomes will be reviewed by the Office of Pre-Clinical Education (Assistant Dean for Assessment, or other authorized individual), in consultation with the Course Director, and a determination made as to the propriety of making a course adjustment.

1. Determining Whether to Adjust Course Scores.
   1.1. Reviewing grade distribution.
   1.2. Course grades will be downloaded from the LMS gradebook system, and reviewed.
        1.2.1. Review will include analysis of raw scores, calculated percent scores from raw score data, grade distribution (generation of a histogram) of percent scores, review of overall mean and standard deviation of course scores, and analysis of z-score values.
   1.3. All calculations to adjust course grades will be based on the percent score, calculated from raw point totals, earned by each student.

   2.1. Using downloaded course grades (from the LMS gradebook) the following data will be generated in the Excel spreadsheet.
2.1.1. Total points available in course and total earned points by individual students.
2.1.2. Raw percent score (course score), calculated from “total earned points/total possible points”.
2.1.3. Overall mean of course scores (raw percent scores) using the Excel “average” function.
2.1.4. Standard deviation of course scores using the Excel “stdevp” function.
2.1.5. Z-score value for each individual student [using the formula: 
   
   \( \left( \frac{\text{individual student score} - \text{mean course score}}{\text{stdevp}} \right) \)].

3. Determining Pass/Fail Cutoff Levels using Raw Data (Percent of Total Earned Points).
   3.1. The cut score for passing will be determined using the downloaded course grades (from the LMS gradebook) and the calculated data points identified in section 2 (course score mean, course score standard deviation, and z-scores).
   3.1.1. Z-Score calculation from downloaded grade data
      3.1.1.1. The z-score represents the number of standard deviations a given score deviates from the mean. A positive z-score indicates deviation above the mean, while a negative z-score indicates deviation below the mean. (e.g. a z-score of -1.67 means the student score fell 1.67 standard deviations below the mean.)
      3.1.1.2. After calculating the z-score (as described in Section 2, above), any z-score of -2.0 or less would be considered an appropriate indicator in identifying a cut-score point.
   3.1.2. Using the data from the z-score calculation (score of -2.0 or less), a cut score, which marks the threshold for passing, is identified. The identified cut score will become the adjusted 70% passing mark, using the course score adjustment procedure outlined below (see Section 4).

   4.1. The calculated values for course score mean, course score standard deviation, and individual student z-score, as well as the determined target course score mean (82.00%) and target standard deviation, will be used to calculate the standard score adjustment using the following process.
   4.1.1. As described above, use the function and formula operations in Excel and calculate the following:
      4.1.1.1. Calculate the sum of points Possible using the summation function
      4.1.1.2. Calculate the sum of earned points for each student using the same summation formula.
      4.1.1.3. Using the total possible points and the total earned points for each student, calculate the “raw percent score” for each student; using the formula.
      4.1.1.4. Calculate the mean percent score for the course using the average function.
      4.1.1.5. Calculate the standard deviation of the population for the percent score using the standard deviation of the population function.
      4.1.1.6. The percent score value of 82% of total points will represent the “target mean”.
   4.1.2. Use the formula operations in the Excel spreadsheet to calculate the score adjustment for each individual student, as follows:
      4.1.2.1. In the cell to the right of the percent score for each student enter the following formula: 
      \( \left( \frac{\text{student percent score} - \text{calculated mean percent score}}{\text{standard deviation of the population of the mean percent score}} \right) \). This is the z-score.
4.1.2.2. In the cell to the right of the z-score for each student enter the following formula: “target percent score (82%) + (student z-score x target standard deviation)”. This is the standardized (adjusted) percent score for the student.

4.1.2.2.1. The “target standard deviation” should be calculated so as to set the adjusted score for the lowest passing grade (cut score, described above in 3.1.2) at 70%.

4.1.2.2.2. The “target standard deviation” value used in the calculation for the adjusted score (described above in 4.1.2.2) is determined by modifying the target SD value such that the formula “82 + (student z-score x target standard deviation)” yields a value above, but as close to, 70% as possible for the lowest passing grade (cut score).

4.1.3. Final course grades will be posted into the LMS gradebook as a percent score grade.

6. Reports/Charts/Forms/Attachments/Cross References

7. Maintenance
Maintained by the office of Pre-Clinical Education and reviewed by Curriculum Committee as needed.

8. Signature

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Cindy Funk, Ph.D.
Assistant Dean of Student Assessment

9. Distribution List
Internal

10. Revision History

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<tr>
<th>Revision Date</th>
<th>Subsection #</th>
<th>Summary of Changes</th>
<th>New/Cancellation/Replacement Procedure? (if applicable)</th>
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<td>9/17/2018</td>
<td>8</td>
<td>moved to Academic Affairs and signed by Assistant Dean of Student Assessment</td>
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<tr>
<td>7/23/19</td>
<td>All</td>
<td>Update to change from Academic Affairs to Pre-Clinical Education; includes change in numbering (from AA to PCE)</td>
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