CU-Boulder, NSSE 2009
Guide to Interpreting the Peer/Over Time Graphs

**Using the graphs.** The graphs are useful for making several comparisons:

- We can compare CU-Boulder students' NSSE ratings to those of students at other public AAU institutions. For example, we might see that on average the frequency with which CU-Boulder students report applying theories or concepts to practical problems or new situations is about the same as that of students at other AAU publics.

- We can compare CU-Boulder averages (means) over time. We can, for example, determine whether the frequency with which CU-Boulder students discuss grades or assignments with an instructor has increased, decreased, or stayed the same from 2001-03 to 2007-09.

- We can gauge the variability of averages over institutions by examining a distribution of averages, which is displayed in each boxplot. For example, a relatively tall boxplot indicates greater variability than does a short boxplot. More information about interpreting boxplots is provided below.

- We can make the above comparisons and determinations for both freshmen and seniors, by college/A&S division (excluding Education, Journalism, and Music, each of which had too few respondents at many institutions) and for the entire campus. The college/A&S division groups were created from NSSE's primary major variable ("maprim," 2001-02) and college of primary major variable ("majrpcol," 2003-09). NSSE’s biological and physical science fields were combined to form A&S Natural Sciences. In this process, psychology was moved from NSSE’s classification of social science to biological science, in order to match CU-Boulder's organizational structure.

**Two panels, 3 "time windows," and 16 public AAUs.** Each graph consists of two panels, one illustrating results for freshmen and the other illustrating results for seniors. Three "time windows" (2001-03, 2004-06, and 2007-09) are shown on the horizontal axis of each panel. CU-Boulder administered NSSE in 2002, 2006, and 2009 and is therefore represented in each of the three time windows. Fifteen other public AAUs also administered NSSE at least once in each time window. Moreover, these institutions are members of NSSE's AAU Data Exchange (AAUDE) Consortium and therefore administered the optional AAUDE items as well. The 15 public AAUs are: Arizona, Illinois, Kansas, Maryland, Michigan, Missouri, North Carolina, Nebraska, Ohio State, Oregon, Pittsburgh, Texas, Virginia, Washington, and Wisconsin. If an institution administered NSSE more than once in a particular time window, all of their data for that time window are included. For example, North Carolina administered NSSE (including the optional AAUDE items) in both in 2007 and 2008. The data from both of these administrations are therefore included in the 2007-09 window.

**CU-Boulder means (denoted by red dots).** The vertical axis of each panel displays the response option values for a particular NSSE item, NSSE benchmark, CU-Boulder scale, or Voluntary System of Accountability (VSA) item. The minimum and maximum values displayed are the minimum and maximum for the item or scale, not the minimum and maximum values of the institutional means. For example, the item "asked questions in class or contributed to class discussions" (see p. 3 of the "Means for NSSE Items..." PDF) has four response options (1 = never, 2 = sometimes, 3 = often, 4 = very often). It can be seen in the graph for this item that CU-Boulder's freshman mean, denoted by the
red dot, was about 2.5 (between "never" and "sometimes") in 2001-03. This mean increased slightly in the 2004-06 window (to 2.6) and then increased slightly again in 2007-09 (to 2.63).

**Grand means (denoted by blue diamonds).** The blue diamonds denote mean item responses over all institutions combined (these are called "grand means"). In the "asked questions in class or contributed to class discussions" item, for example, the 2001-03 freshman grand mean is about 2.7. We can see that this mean stayed roughly the same in 2004-06 and increased slightly in 2007-09.

**Boxplot components.** A boxplot, which summarizes the distribution of the 16 institutional means, is shown for each time window. Each of the small circles shown in a boxplot denotes a mean item response for a particular institution. CU-Boulder means are always denoted by red dots. The center-most horizontal bar of a boxplot denotes the median, or 50th percentile. The ends of a boxplot denote the 25th and 75th percentiles. The upper "whisker" of a boxplot extends to the maximum mean that is below the "upper fence" (not shown in the graphs), which is defined as the point that is 1.5 times the interquartile range (75th percentile minus 25th percentile) above the 75th percentile. Some means that are very large will exceed this boundary and therefore will extend beyond the upper whisker. Similarly, the lower whisker extends to the minimum mean above the lower fence (1.5 times the interquartile range below the 25th percentile). Very small means may extend beyond the lower whisker.