Implementing the Common Core’s Promise of Bringing Statistical Curricula into Line with Recommendations of NCTM, MAA, & GAISE

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Implementing the Common Core’s Promise of Bringing Statistical Curricula into Line with Recommendations of NCTM, MAA, & GAISE

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Common Core is a new package for not-new ideas

- National Council of Teachers of Mathematics
- Mathematical Association of America
- American Statistical Association
- Guidelines for Assessment and Instruction in Statistics Education
- Common Core State Standards for Math
Mathematical (Statistical) Practice

- Foster active learning in the classroom
- Stress conceptual understanding, rather than mere knowledge of procedures
- Emphasize statistical literacy and develop statistical thinking
- Use real data
- Use technology for developing conceptual understanding and analyzing data
- Use assessments to improve and evaluate student learning
MATHEMATICAL (STATISTICAL) PRACTICE
## Comparison Chart

<table>
<thead>
<tr>
<th>NCTM Process Standards</th>
<th>CCSS Standards for Mathematical Practice</th>
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</thead>
<tbody>
<tr>
<td>Problem Solving</td>
<td>• Make sense of problems and persevere in solving them (MP1)</td>
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<tr>
<td></td>
<td>• Use appropriate tools strategically (MP5)</td>
</tr>
<tr>
<td>Reasoning and Proof</td>
<td>• Reason abstractly and quantitatively (MP2)</td>
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<td></td>
<td>• Critique the reasoning of others (MP3b)</td>
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<td>• Look for and express regularity in repeated reasoning (MP8)</td>
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<tr>
<td>Communication</td>
<td>• Construct viable arguments (MP3a)</td>
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<tr>
<td>Connections</td>
<td>• Attend to precision (MP6)</td>
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<td></td>
<td>• Look for and make use of structure (MP7)</td>
</tr>
<tr>
<td>Representations</td>
<td>• Model with mathematics (MP4)</td>
</tr>
</tbody>
</table>
CONSEQUENCES FOR K-12 STATISTICS CURRICULUM
Consequences for Collegiate Statistics Curriculum
Consequences for Collegiate Mathematics Education Curriculum
Recommendations

• In-service mathematics teachers will need extensive professional development in creating relevant activities and assessment tools to accommodate less reliance on calculations.

• College mathematics departments will need to create two entry level statistics classes: 1) for mathematicians and statisticians and 2) for everybody else.

• Pre-service teachers will need to be taught how to develop lessons that will entice students to use data in decision making.
Resources for Activities

- CAUSE resources [causeweb.org]
- AIMS resources [www.tc.umn.edu/~aims/index.htm]
- WISE applets [wise.cgu.edu]
- Publishers’ Software
REFERENCES


• [http://www.corestandards.org/Math/Practice/](http://www.corestandards.org/Math/Practice/)