

Advanced Mathematical Decision Making

Factsheet for U.S. schools implementing AMDM in 2011–2012



A project of the Charles A. Dana Center at
The University of Texas at Austin in partnership with
the Texas Association of Supervisors of Mathematics
with generous support for development by the Greater Texas Foundation



What is AMDM?

Advanced Mathematical Decision Making (AMDM) is a mathematics course for high school seniors that follows Algebra I, Geometry, and Algebra II or Integrated Mathematics 1, 2, 3. It builds on and extends what students have learned and covers a range of mathematics topics that are not part of most school mathematics programs. AMDM does not review or remediate skills from the first three years of high school mathematics, but students will reinforce these skills as they study new topics in mathematics in relevant and engaging contexts. The course also helps students develop college and career skills such as collaborating, conducting research, and making presentations. AMDM was designed by mathematics and education professionals, organized by the Charles A. Dana Center at the University of Texas at Austin, working with the Texas Association of Supervisors of Mathematics (TASM).

How does AMDM fit with the Common Core State Standards?

AMDM is the kind of course called for in the Common Core State Standards as an appropriate, rigorous fourth-year option to follow either the three-year integrated/international high school mathematics pathway or the pathway organized around traditional course titles (Algebra I, Geometry, and Algebra II). The course is in use or planned for implementation as a fourth-year option in several states that have adopted the Common Core State Standards.

Materials

The Dana Center, in collaboration with TASM and educators and other mathematics experts, has developed AMDM course materials for teachers and students that provide comprehensive support for the course. Development grants from the Greater Texas Foundation have allowed us to provide license to use the 2010 edition of AMDM course materials for the education of Texas students. Educators and schools outside of Texas can contract for license to use materials and receive professional development and online support.

Cost

Fees for professional development and online support are established to recover costs for course delivery and support outside Texas, including providing each teacher one copy of student and teacher instructional materials in print and electronic form, with perpetual rights to use these materials with students in the classroom.

For the 2011–2012 school year, the cost for these rights and the professional support package is \$2,500 per teacher, including a five-day summer institute, one follow-up day each semester of the school year, and access to an online community providing additional resources and collegial interactions related to AMDM. Schools should plan to cover costs of reproducing student materials or purchasing bound copies of student materials for \$30 per student. Customized contract arrangements are also possible.

Professional development

In-depth professional development is an essential part of AMDM teacher support. The unique combination of content taught in this course is not likely to have been part of any teacher preparation or mathematics program. And the course calls for teaching in ways that place a high level of responsibility on students as they develop college and career skills such as collaborating, conducting research, and making presentations.

Ideally, teachers new to AMDM should participate in at least seven days of professional development during the first year, including a five-day summer institute and two individual follow-up days during the school year. Several such sessions will be conducted in Summer 2011 at various locations throughout Texas, as well as outside of Texas; follow-up days will be scheduled flexibly to meet the needs of teachers and schools. Teachers can also access a variety of online resources throughout the school year, provided by project staff and contributed to by fellow AMDM teachers via online AMDM communities.

AMDM topic list (revised December 2009)

(Note: Materials have been developed thus far to address Topics 1–6 and 8–11.)

- (DM.1) **Developing college and career skills.** The student develops and applies skills used in college and careers, including reasoning, planning, and communication, to make decisions and solve problems in applied situations involving numerical reasoning, probability, statistical analysis, finance, mathematical selection, and modeling with algebra, geometry, trigonometry, and discrete mathematics.
- (DM.2) **Analyzing numerical data.** The student analyzes numerical data in everyday situations using a variety of quantitative measures and numerical processes.
- (DM.3) **Analyzing information using probability.** The student analyzes and evaluates risk and return in the context of everyday situations.
- (DM.4) **Critiquing applications of statistics.** The student makes decisions based on understanding, analysis, and critique of reported statistical information and statistical summaries.
- (DM.5) **Conducting statistical analyses.** The student applies statistical methods to design and conduct a study that addresses one or more particular questions.
- (DM.6) **Communicating statistical information.** The student communicates the results of reported and student-generated statistical studies.
- (DM.7) **Mathematical decision making in ranking and selection.** The student analyzes the mathematics behind various methods of ranking and selection.
- (DM.8) **Modeling data.** The student models data, makes predictions, and judges the validity of a prediction.
- (DM.9) **Modeling change and relationships.** The student uses mathematical models to represent, analyze, and solve problems involving change.
- (DM.10) **Mathematical decision making in finance.** The student creates and analyzes mathematical models to make decisions related to earning, investing, spending, and borrowing money.
- (DM.11) **Network modeling for decision making.** The student uses a variety of network models represented graphically to organize data in quantitative situations, make informed decisions, and solve problems.
- (DM.12) **Modeling with geometric tools.** The student uses a variety of tools and methods to represent and solve problems involving static and dynamic situations.

Contact

For more information, or to be part of the AMDM email list, contact amdm@austin.utexas.edu, or visit the AMDM website at www.utdanacenter.org/amdm.