



From Capstone to Gemstone to Keystone: And Now Marquee Courses?

Nevenka Zdravkovska, Damon Austin, Maureen Cech, Jim Miller, Bob Kackley
University of Maryland Libraries, College Park, Maryland

BACKGROUND

The University of Maryland, College Park, is a major public research university located on 1,250 acres of rolling land along the Baltimore-Washington, D.C. high-tech corridor.

Fall 2007 Enrollment

Undergraduates: 25,857
Graduates: 10,157
Total: 36,014

Academic Programs

Colleges and Schools: 13
Undergraduate Majors: 127
Graduate Degrees: 112

Colleges and Schools

A. James Clark School of Engineering
College of Agriculture and Natural Resources
School of Architecture, Planning, and Preservation
College of Arts and Humanities
College of Behavioral and Social Sciences
College of Chemical and Life Sciences
College of Computer, Mathematical and Physical Sciences
College of Education
College of Information Studies
Phillip Merrill College of Journalism
Robert H. Smith School of Business
School of Public Health
School of Public Policy

Gemstone

Began 12 years ago, Gemstone is a multidisciplinary four-year research program for selected undergraduate honors students of all majors. Sophomore, Junior, and Senior teams of 12-15 students per team are assigned a team librarian to assist and guide them.

Keystone

Initiated within the Clark School two years ago, Keystone focuses on improving the educational experience for undergraduates early on by arranging for some of the best faculty to teach introductory engineering courses. This highly selective program fosters exemplary undergraduate teaching skills and a commitment to excellence in fundamental engineering courses.

Capstone

The CORE Capstone Option fulfills the General Education Requirement.

MARQUEE COURSES?

Marquee Courses in Science and Technology

- "Signature program developed at the University of Maryland"
- National need to understand and appreciate science, engineering, and mathematics
- Provide solutions to present and future world challenges

Leading U of MD science faculty teach the courses

- For students not majoring in sciences or engineering
- Study science and its solutions to many problems facing today's world
- Courses fulfill lower level CORE science requirement

FALL 2007

- **GEOL124 Biogenesis: Making a Habitable Planet; (3 credits)** – Dr. James Farquhar
 - How life has shaped Earth's physical environments throughout history
 - Building blocks of life, origin and diversification of life; impact on Earth environments
 - Scientist's perspective and scientific method
 - Study future interactions of life and environments
 - Both on Earth and in solar system
- Students: 37

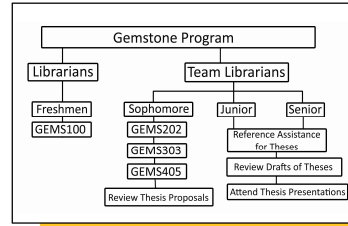
➢ ENMA150 Materials of Civilization; (3 credits)

- Introduction to basic structure and properties of materials
- Connects major advances in history to advances in materials
- Students: 64

SPRING 2008

- **ENEE189W Engineering Issues in Medicine; (3 credits)** – Dr. Wes Lawson
 - Non-technical introduction to electrical and computer engineering in modern medicine
 - Overview of current biomedical diagnosis and treatment devices
 - All aspects of bringing new products or technology to market
 - Roles of government and industry; financial, legal, ethical, social considerations
- Students: 35

LIBRARIAN CONTRIBUTIONS



Gemstone Librarians teach 16 one-hour **GEMS 100** library sessions.

Team Librarians teach **GEMS 202**, one-hour sessions that help new teams formulate topics and choose the most helpful resources.

- Work closely with undergraduate teams on three-year projects
- Provide general reference/research advice for sophomore and freshmen teams
- Review sophomore team thesis proposals and junior team draft theses
- Attend Fall Junior Colloquia and Spring Undergraduate Research Day poster sessions
- Help critique senior team Thesis Rehearsals
- Attend Final Thesis Conference
- Attend Gemstone Citation Ceremony—students, mentors, and librarians in full academic regalia

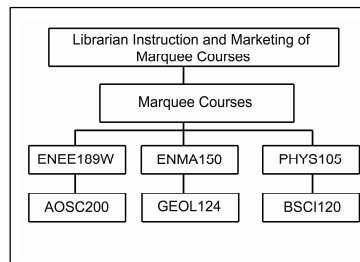
Summer 2007: Strongly marketed library services to professors of new Marquee Courses.

- CORE science courses for non-science majors beginning Fall 2007
- We matched library resources to specific Marquee class topics.

Marquee Courses 2007

AOSC 200 Weather and Climate – How weather and climate affect daily activities (Dr. Hudson)
BSCI 120 The Insects: Pollinators in Crisis – Insects and the pollinator crisis (Dr. Armstrong)
ENEE 189W Engineering Issues in Medicine – Rudimentary principles of medical devices (Dr. Lawson)
ENMA 150 The Materials of Civilization – New materials shaping history and civilizations (Dr. Briber)
GEOL 124 Biogenesis: Making a Habitable Planet – Life shaping Earth environments (Dr. Farquhar)
PHYS 105 Physics for Decision Makers: The Global Energy Crisis – Physics of energy (Dr. Goodman)

Fall 2008: Librarians will re-market to classes not yet using our assistance. Additional Marquee Courses are being considered.



Marquee Program Logo

EFFECTS

We targeted Marquee Courses to reach our largest population: undergraduate students

2007-2008

- **PHYS 104 How Things Work: Science Foundations** – Dr. Anderson (Fall); Dr. Liu (Spring)
 - Non-mathematical course
 - Basics of mechanical, electrical, and optical devices common in our world
 - General approach: look inside things to observe how they work
 - Students: 51 (Fall); 31 (Spring)
- **ENAE 100 The Aerospace Engineering Profession** – Dr. Pines
 - Overview of Aerospace Engineering professional practice
 - Technical expertise needed to succeed in the profession
 - Objectives of ENAE at UMCP to help students gain required knowledge and skills
 - ENAE faculty and areas of research
 - Creation of links with other students
 - Professional society student chapters and available resources
 - Ethical issues, business requirements, interactions with technical developments
 - Students: 112 (Fall)
- **Inventis: Academy of Engineering Leadership**
 - Small community of talented students mentored by Clark School faculty
 - Initiated Fall 2004 by former dean and current UM provost, Nariman Farvardin
- **BOIE150 Applied Ethics and Public Policy in Bioengineering**
 - Medical devices such as heart valves and artificial hearts
 - Government requirements for clinical testing
 - Obligations of physicians, manufacturers, FDA and Congress to patients
 - Professor relied upon librarian for extra class consultation and support

FUTURE STEPS

University of Maryland Ten Year Strategic Plan, 2008-2018

- Approved May 2008 after year-long discussion, comment, and hearings
- Article in student newspaper *The Diamondback* (May 13, 2008)
- Strategic Plan, as at many other U.S. colleges and universities, aims to restructure general education to reflect more contemporary concerns

Librarians will monitor Strategic Plan's core curriculum changes

- Curriculum changes open opportunities for more Marquee Courses
- More courses that examine contemporary issues
- We can use our experience in marketing and instructing Marquee Courses to reach other new classes and professors
- Library resources and expertise will be shown to a wider population
- Team-teaching exhibits the expertise of individual librarians, bringing multiple perspectives to courses that value plurality and critical thinking

LINKS

GEMSTONE

<http://www.gemstone.umd.edu/>

KEYSTONE

<http://www.eng.umd.edu/giving/keystone.html>

CAPSTONE

<http://www.umd.edu/catalog/index.cfm/show/content.section/c/675/1176>

MARQUEE

<http://www.marqueecourses.umd.edu/>

EPSSL WIKI

https://wiki.math.umd.edu/library_epsl/ASEE_Poster_Presentation

UNIVERSITY OF MARYLAND STRATEGIC PLAN

<http://sp07.umd.edu/StrategicPlanWorking.html>

INVENTIS PROGRAM

<http://www.ursp.umd.edu/inventis/>