Mathematics Department

Temporarily at Preble Hall

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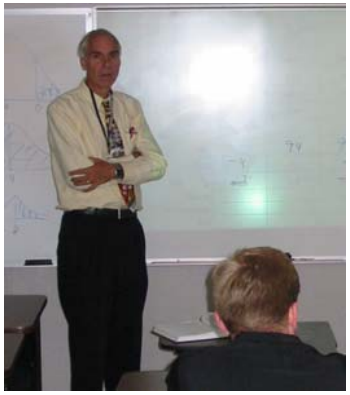
Profile of the Month
Prof. Charles Mylander

Professor Charles Mylander is the senior faculty member involved in the operations research (OR) group of courses offered by the mathematics department. Mathematics majors and quantitative economics majors can choose among these courses to fill the requirements to earn the navy's first subspecialty code (the 3211 E code)



offered to officers entering the Navy upon completion of their undergraduate education. The 3211 E code was established by the Chief of Naval Operations' Assessment Division (N81); the requirements for this program are jointly administered by Prof. Mylander, Prof. James Eagle, Chairman of the Operations Research Department at the Naval Postgraduate School, and a representative of N81.

After getting his masters degree from MIT, Professor Mylander started his career working as an OR analyst for the Research Analysis Corporation which did OR work for the Army. There he worked on developing algorithms and computer codes for solving optimization problems and applying these procedures to Army problems, including the problem of determining the Army's needs for draftees on a monthly basis. He then returned to graduate school at Stanford University to complete a Ph. D. degree in OR.

In 1972 he joined the faculty at the Naval Academy where he has taught OR courses and worked on search and detection problems for the Navy. When the first oil crises hit in 1973 he began to consult with the federal government on modeling the energy markets to formulate energy policy. Then in 1978 Professor Mylander was given a two year leave of absence to work full time managing the development and uses of the Energy Information Administration's forecasting models.

Linear Models and Optimization (SA401) is his favorite course. It reflects his years of work in the development of optimization procedures and his modeling experience in energy modeling. With Professor Sanders he is writing a textbook for use in that course that is now being used in draft form in SA401.

The symbol used on this current issue of Math News is one of the Platonic Solids. The Platonic solids, also called the regular solids or regular polyhedra, are convex polyhedra with equivalent faces composed of congruent convex regular polygons. There are exactly five such solids: the cube, dodecahedron, icosahedron, octahedron, and tetrahedron, as was proved by Euclid in the last proposition of the *Elements*. Ref. http://mathworld.wolfram.com/PlatonicSolid.html More on this in the next Math News Issue.

Math News

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Volume 4 Issue 1

November 8, 2004

HOT OFF THE PRESS: Math Majors take on Virginia Tech Contest (Read inside p.3)

Operations Analysis Sub-Specialty Code

(Article written by Prof. Mylander) The Navy has long used the subspecialty coding system to track officers with master's degree in fields especially useful to the naval service. The Navy uses the subspecialty code to fill critical billets both at sea and ashore with officers who have requisite knowledge in certain areas not specifically related to their designator (e.g., surface, aviation, submarine). One such subspecialty code is the 3211 P code in Operations Analysis. In the fall of 2001 the Navy announced plans to award junior officers with technical undergraduate degrees a subspecialty code. The Chief of Naval Operations' Assessment Division (OPNAV -- N81) capitalized on the opportunity afforded by this new program to establish an undergraduate subspecialty code in Operations Analysis (OA).

In 2002 three midshipmen were awarded the 3211 E code. Math Major Cole Muller was one of this first group of three to earn the code. He is shown in the accompanying picture with Dean Miller. Midshipman Muller selected submarines and was sent to the Naval Postgraduate School immediately upon graduation. He is the first officer to earn a P code and Masters Degree in Operations Research in four quarters. Another ten graduating midshipmen earned the 3211 E code in 2003. The second accompanying picture shows Admiral Al Myers, Professor Mylander, Professor Meyerson, and the 19 graduates of the class of 2004 who earned the 3211 E code. This program supports the Navy's need for officer

Inside this issue:

This issue will start a series of descriptions of what you can do with a mathematics degree. What are the opportunities after you graduate? In particular in this issue we present the Operations Analysis sub-specialty code.

Also of note are challenges, quotes and math puzzles inside.

3211 E code **(Continuation)**

analysts who are in critically short supply. It is designed to identify qualified officers early in their career and encourage them both to pursue graduate studies in Operations Analysis and to apply their undergraduate degree in analyst positions throughout the Navy. The Navy needs many more officers with Operations Analysis skills to improve decision-making, develop new war-fighting tactics, support systems integration, and fill many other challenging analytical assignments.

At the Naval Academy both Mathematics majors and Quantitative Economics majors can fill the requirements by making appropriate choices of elective courses. To earn the 3211 E code a mathematics major in the Applied Track must in addition to getting good grades elect to use two of his/her three math electives to take Simulation Modeling (SA421) and either Linear Optimization (SA401) or Search and Detection Theory (SA410). A midshipman awarded the 3211 E code is well prepared to enter the masters degree program in Operations Research at the Naval Postgraduate School and has the academic skills to be useful as a junior analyst assigned to an OA team before going to the Postgraduate School.

MATHEMATICALLY HOT!

On Saturday 23 October 2004, Midn 1/C Stephen McMath, 2/C Peter Barkley, and 3/C Marjorie Drake represented USNA in the Virginia Tech Regional Mathematics Contest with contestants from dozens of schools all over the Southeast. Final results won't be known for several weeks.

Count the Streetlights

On the opposite sides of a street, there are 45 streetlights, each one at a distance of 30 yards from each other. The streetlights on one side are arranged so that each lamp fills a gap between two other streetlights on the opposite side. How long is the street?

Question of the Month

During a period of days, it was observed that when it rained in the afternoon, it had been clear in the morning, and when it rained in the morning, it was clear in the afternoon. It rained on 9 days, and was clear on 6 afternoons and 7 mornings. How long was this period?

E-mail your answer to Prof. Garcia smg@usna.edu. The first midshipman to get the right answer is eligible for a fantastic math water bottle.

"If you want to live a happy life, tie to a goal, not to people or things."
Einstein.