TAM CORNELL - A BRIEF HISTORY AND OVERVIEW

Because most universities do not contain a Department of Theoretical and Applied Mechanics (TAM), it might be useful to recall the origins of this Cornell department. The predecessor to TAM at Cornell was the Department of Engineering Mechanics and Materials (EMM), established about fifty years ago in order to avoid duplication in the teaching of the fundamental mechanics and materials courses. The new department was formed from the faculty in Civil Engineering and Mechanical Engineering who were responsible for teaching these courses in their individual departments.

By the early 1960s, engineering at Cornell, as at many other major research universities, had begun to become more mathematical and, as a result, several applied mathematicians were added to the faculty of EMM, where they introduced courses in undergraduate differential equations and graduate applied mathematics. Today's sophomore sequence in engineering mathematics (MATH 2930-2940), equally shared between Engineering and Arts and Sciences, originated when the undergraduate differential equations course was joined with an advanced calculus course offered by the Department of Mathematics.

In the mid-sixties, the materials professors in EMM joined with some faculty from Engineering Physics and Chemical Engineering to begin the Department of Materials Science and Engineering (MSE). The mechanics and applied mathematics professors who remained then changed the name of EMM to the Department of Theoretical and Applied Mechanics. In the ensuing years, the size of TAM has remained at about thirteen professors. At present, it has the following instructional responsibilities:

> The teaching of many of the applied mathematics courses provided to engineers (a lead role in the teaching of freshman calculus, shared teaching of sophomore engineering mathematics, and the teaching of a one-year sequence of upper-class undergraduate applied mathematics and a two-year sequence of graduate applied mathematics)
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> The teaching of sophomore dynamics and sophomore mechanics of solids
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> The teaching of a variety of graduate courses in solid mechanics and dynamics.

For many years, the department has taught the largest number of student contact hours per faculty in the College. This teaching has been of the highest quality; three-quarters of the faculty have received teaching awards.

All of the TAM faculty are involved in research and the education of graduate students. Typically, this research is highly interdisciplinary and, as a result, the department has significant ties (joint research contracts, field memberships, or dissertation supervision) to more than ten other units within the University. The strongest relations are with the Cornell Center for Materials Research (CCMR), the Center for Applied Mathematics (CAM), and the Sibley School of Mechanical and Aerospace Engineering (MAE).

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