

PROMOTION RECOMMENDATION

University of Michigan
College of Engineering

Scott J. Hollister, associate professor of biomedical engineering, with tenure, Department of Biomedical Engineering, and associate professor of mechanical engineering, without tenure, Department of Mechanical Engineering, College of Engineering, is recommended for promotion to professor of biomedical engineering, with tenure, Department of Biomedical Engineering, and professor of mechanical engineering, without tenure, Department of Mechanical Engineering, College of Engineering. [Also holds the title of associate professor of surgery, with tenure, Medical School.]

Academic Degrees:

B.S.E.	1984	University of Michigan, Ann Arbor, Aerospace Engineering
M.S.E.	1986	University of Michigan, Ann Arbor, Applied Mechanics
M.S.	1986	University of Michigan, Ann Arbor, Bioengineering
Ph.D.	1991	University of Michigan, Ann Arbor, Bioengineering

Professional Record:

1998-present	Associate Professor of Biomedical Engineering, University of Michigan
1998-present	Associate Professor of Mechanical Engineering, University of Michigan
1998-present	Associate Professor of Surgery, University of Michigan
1996-1998	Assistant Professor of Biomedical Engineering, University of Michigan
1993-1998	Assistant Professor of Mechanical Engineering and Applied Mechanics, University of Michigan
1991 to 1998	Assistant Professor of Surgery, University of Michigan

Summary Evaluation:

Teaching: During his tenure as Associate Professor, Professor Hollister has made important contributions to the teaching mission of the Department of Biomedical Engineering through his classroom teaching and his development of new courses, specifically in the area of biosolid mechanics and mathematical modeling. Professor Hollister has developed two new courses, BME 332 – Introduction to Biosolid Mechanics (junior level, taught for the first time Winter '05) and BME 506 - Computational Modeling of Biological Tissues (graduate, taught 4 times), as well as re-developed a third course, BME 456 - Biosolid Mechanics: Modeling and Applications (formally Tissue Mechanics; advanced undergraduate/beginning graduate, taught 7 times). These courses represent a substantial portion of the biosolid mechanics curriculum in Biomedical Engineering. The range of Professor Hollister's Q1 and Q2 scores were: BME 456 (Q1: 3.06-3.75, Q2:3.60-4.13); BME 506 (Q1: 3.86-4.00; Q2: 3.94-4.00); BME 332 (Q1: 3.63, Q2: 3.83).

Professor Hollister has chaired or co-chaired 7 doctoral committees, 6 during his time as Associate Professor, and he is the chair or co-chair of 8 doctoral committees of current students. During his time as Associate Professor, has consistently supported 8-10 graduate students and post docs. Students were largely positive in their assessment of Professor Hollister's mentoring. While most students felt that Professor Hollister was extremely busy, and many felt that he has a hands off style, only a minority expressed concern about these issues impacting his ability to commit time, guide their research or help them capture the big picture.

Research: Professor Hollister has a very active research group, focusing on tissue engineering, scaffold design and computational modeling of biologic tissues. He has 48 refereed journal publications (28 since his last promotion), 162-refereed conference summaries or abstracts (65 since his last promotion), and 14 book chapters (7 since his last promotion). His papers are published in well-respected journals, and are well cited. Professor Hollister's newer work in tissue engineering (papers # 21,24,28,30,31) has been cited 28-43 times. These papers are cited less than his work on computational tissue mechanics, likely due to the tissue engineering work being newer. Professor Hollister is one of the first researchers to introduce multiscale homogenization and image based modeling to biologic tissues. Since his promotion to Associate Professor, Professor Hollister has developed an international standing in tissue engineering, and 33 of his 49 invited presentations have been on this topic. He is well respected by people from a wide range of engineering, scientific and clinical backgrounds, demonstrating his multidisciplinary impact.

Professor Hollister's scholarly activities are well-funded research, mostly from NIH. He is PI on 1 NIH R01 grant and a Bioengineering Research Partnership, totaling \$4.63M in DC, and co-PI on 3 other grants, totaling \$700K annually. The Bioengineering Research Partnership grant exhibits team building skills for complicated research. In the last 5 years Professor Hollister has developed a network of collaboration of investigators from diverse backgrounds throughout the University as well as nationally and internationally.

Recent and Significant Publications:

Chu, T.-M. G., Orton, D.G., Hollister, S.J., Feinberg, S.E., and Halloran, J.W.: Mechanical and *in vivo* performance of hydroxyapatite implants with controlled architectures", *Biomaterials*, 23:1283-1293, 2002.

Adachi, T., Tsubota, K., Tomita, Y. and Hollister, S.J.: Trabecular surface remodeling simulation for cancellous bone using microstructural voxel finite element methods, *Journal of Biomechanical Engineering – Trans ASME*, 123:403-409, 2001.

Hollister, S.J., Levy, R.A., Chu, T.M.G., Halloran, J.W., and Feinberg, S.E.: An Image Based Approach to Design and Manufacture Craniofacial Scaffolds, *International Journal of Oral/Maxillofacial Surgery*, 29:67-71, 2000.

Zysset P.K., Goulet R.W. and Hollister S.J.: A Global Relationship between Trabecular Morphology and Homogenized Elastic Properties, *Journal of Biomechanical Engineering – Trans ASME.*, 120:640-646, 1998.

Guldborg, R.E., Hollister, S.J., Charras G.: The Accuracy of Digital Image-Based Finite Element Models, *Journal of Biomechanical Engineering – Trans ASME*, 120:289-295, 1998.

Service: Professor Hollister is currently serving on 5 BME Department committees (Internal Review, ABET, Faculty Search, Undergraduate Education, Biomechanics Curricular Working Group), 2 College of Engineering committees (Mechanical Engineering Search, BME Chair Search), and 3 University committees (NIH Medical School Roadmap Initiative, OVPR Conflict of Interest, Spine Research). Professor Hollister's service contributions have impacted 4 areas: (1) undergraduate education of BME students, (2) future directions of the BME department, (3) promotion of activities that integrate the research interests between the College of Engineering and the Medical School, and (4) promotion of integrative biomedical engineering research interests nationally and internationally.

External Reviewers:

Reviewer (A): "In conclusion, Scott is a top-notch researcher that has shown a very high level of creativity and innovation. I would be pleased and proud to have him as a colleague and would have no reservations in recommending him as a full professor here at [my institution]."


Reviewer (B): "I think that Michigan is very fortunate to have Scott on its faculty. His record of academic performance amply supports his promotion to the rank of full professor. He is exactly the sort of individual that strong university departments are built around."

Reviewer (C): "In summary, this promotion has my strong support. The University of Michigan can be proud of having Professor Hollister on the faculty."

Reviewer (D): "In summary, Scott Hollister PhD is a peerless scientist, educator, innovator, collaborator, and leader. He is an authority on tissue engineering and biomechanics. His teaching, administrative, and leadership accomplishments clearly and unequivocally have distinguished Dr. Hollister."

Reviewer (E): "In all regards, scholarship, research, education and service, Dr. Hollister has developed an impressive record, and one that in [sic] fully commensurate with the rank of Professor at a top research-intensive university. We at [my institution] would be most pleased to have Scott as a Professor in our department, and I am confident that you are equally pleased to have him as an ambassador of the University of Michigan."

Summary of Recommendation: Starting from a junior faculty position in the Medical School, Professor Scott J. Hollister has rapidly become a valued senior member of the BME Department. His research program and reputation is truly world-class. Clearest evidence of his senior standing is the successful NIH-BRP that he directs. He has developed into a solid classroom instructor and an excellent graduate student mentor. And finally, he realizes what it means to be part of a community, delivering service to the department, college, university, and nation at a level consistent with a senior faculty member in the College of Engineering. It is with the support of the College of Engineering Executive Committee that I recommend him for promotion to professor of biomedical engineering, with tenure, Department of Biomedical Engineering, and professor of mechanical engineering, without tenure, Department of Mechanical Engineering, College of Engineering.



Ronald Gibala
Interim Dean, College of Engineering

May 2006