Dr. Andrew M. Smith

Education:	Dartmouth College	1983-1987: A.B. in Biology
	University of North Carolina	1987-1992: Ph.D. in Biology

***Professional Experience*:**

Associate Professor, Department of Biology, Ithaca College, Ithaca, NY, August 2004 to present.

Assistant Professor, Department of Biology, Ithaca College, Ithaca, NY, August 2000 to August 2004.

Associate Professor, Department of Biological Sciences, Butler University, Indianapolis, IN, March 2000 to August 2000.

Assistant Professor, Department of Biological Sciences, Butler University, Indianapolis, IN, August 1994 to March 2000.

Visiting Assistant Professor, Department of Biology, Davidson College, Davidson, NC, 1994.

Postdoctoral Fellow, North Atlantic Treaty Organization Fellowships in Science, National Science Foundation, Laboratoire Arago, Université Pierre et Marie Curie (Paris VI) Banyuls-sur-Mer, France, 1992-1993.

Graduate student, Department of Biology, University of North Carolina, Chapel Hill, NC, 1987-1992.
National Science Foundation Graduate Fellow, 1988-1992.
University Graduate Fellow, 1987-1988.
Graduate Teaching Assistant, 1989-1990.

Research Interests: Comparative physiology, biochemistry and biomechanics

I study the biochemical structure and the mechanics of visco-elastic, gel-based biological glues. I am currently focusing on the mechanism by which different molluscs convert a loose, lubricating gel into a powerful adhesive.

***Bibliography*:**

Books

Smith, A. M. and Callow, J. A. (2006). *Biological Adhesives*. Springer, Berlin.

Papers (* indicates undergraduate co-authors)

Bradshaw, A.*, Salt, M.*, Bell, A.*, Zeitler, M.*, Litra, N.* and Smith, A. M. (in press). Cross-linking by protein oxidation in the rapidly setting gel-based glues of slugs. *J. Exp. Biol.*

Smith, A. M. (2010). Gastropod secretory glands and adhesive gels. In *Biological Adhesive Systems*, J. von Byern and I. Grunwald, eds., pp. 41-51. Springer, Wien.

Smith, A. M., Robinson, T. M.*, Salt, M. D.*, Hamilton, K. S.*, Silvia, B. E.* and Blasiak, R.* (2009). Robust cross-links in molluscan adhesive gels: testing for contributions from hydrophobic and electrostatic interactions. *Comparative Biochemistry and Physiology, Part B,* **152**: 110-117.

Werneke, S. W.*, Swann, C.*, Farquharson, L. A.*, Hamilton, K. S.* and Smith, A. M. (2007). The role of metals in molluscan adhesive gels. *Journal of Experimental Biology*, **210**: 2137-2145.

Smith, A. M. (2007). Adhesion. In *Encyclopedia of Tidepools and Rocky Shores*, M. W. Denny and S. D. Gaines, eds. University of California Press, Berkeley.

Smith, A. M. (2006). The biochemistry and mechanics of gastropod adhesive gels. In *Biological Adhesives*, A. M. Smith and J. A. Callow eds., pp. 167-182. Springer, Berlin.

Pawlicki, J. M.*, Pease, L. B.*, Pierce, C. M*., Startz, T. P.*, Zhang, Y. and Smith, A. M. (2004). The effect of molluscan glue proteins on gel mechanics. *Journal of Experimental Biology,* **207**: 1127-1135.

Smith, A. M. (2002). The structure and function of adhesive gels from invertebrates. *Integrative and Comparative Biology*, **42**: 1164-1171.

Kier, W. M. and Smith, A. M. (2002). The structure and adhesive mechanism of octopus suckers. *Integrative and Comparative Biology*, **42**: 1146-1153.

Smith, A. M. and Morin, M. C.* (2002). Biochemical differences between trail mucus and adhesive mucus from marsh periwinkle snails. *Biological Bulletin*, **203**: 338-346.

Smith, A. M., Quick, T. J.* and St. Peter, R. L.* (1999). Differences in the composition of adhesive and non-adhesive mucus from the limpet *Lottia limatula*. *Biological Bulletin,* **196**: 34-44.

Smith, A. M. (1999). A model circulatory system for use in undergraduate physiology laboratories. *American Journal of Physiology* **277** *(Advances in Physiology Education* **22***)*: S92-S99.

Smith, A. M. (1996). Cephalopod sucker design and the physical limits to negative pressure. *Journal of Experimental Biology*, **199**: 949-958.

Smith, A. M. (1994). Xylem transport and the negative pressures sustainable by water. *Annals of Botany,* **74**: 647-651.

Smith, A. M., W. M. Kier and S. Johnsen (1993). The effect of depth on the attachment force of limpets. *Biological Bulletin*, **184**: 338-341.

Smith, A. M. (1992). Alternation between attachment mechanisms by limpets in the field. *Journal of Experimental Marine Biology and Ecology*, **160**: 205-220.

Smith, A. M. (1991). Negative pressure generated by octopus suckers: a study of the tensile strength of water in nature. *Journal of Experimental Biology*, **157**: 257-271.

Smith, A. M. (1991). The role of suction in the adhesion of limpets. *Journal of Experimental Biology*, **161**: 151-169.

Kier, W. M. and A. M. Smith (1990). The morphology and mechanics of octopus suckers. *Biological Bulletin*, **178**: 126-136.

Courses Taught:

Animal Physiology
Current Topics in Biochemistry
Principles of Biology
Endocrinology
Ecophysiology
Human Anatomy and Physiology / The Human Organism (non-majors)
Literature in Biology
Principles of Zoology