



AMS

AMERICAN MATHEMATICAL SOCIETY

201 Charles St., Providence, RI 02904-2294 USA
Phone: 800-321-4267 or 401-455-4000, Fax: 401-455-4004
www.ams.org

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The Culture of Research and Scholarship in Mathematics: Postdoctoral Positions

In mathematics, as in other sciences, postdoctoral work is an important part of the training of young researchers, and is an essential part of the rich research life of many departments. A “postdoc” is a recent doctoral graduate, in a temporary position, whose main purpose is to engage in research training under the supervision of a faculty member, who in turn is expected to give individual attention to furthering the career of the postdoc. However, in contrast to most of the natural sciences, teaching plays a fundamental role in both the training and the funding of most postdocs in the mathematical sciences.

Since postdoctoral appointments in mathematics are not usually tied to either lab work or large projects, and are often supported through teaching rather than external grants, much of the funding for postdocs comes from individual universities. For example, in 2005 the AMS survey reported a total of 890 postdocs in the mathematical sciences (including statistics). However, only 31 of these were supported full-time through the prestigious NSF postdoctoral fellows program and another 339 received partial NSF support. This aspect of postdoctoral funding may partially explain the observation that postdocs in the mathematical sciences have both greater independence and greater responsibilities and are typically paid more than postdocs in other sciences, often at the same rate as a beginning tenure-track assistant professor.

In the biological sciences, chemistry, and physics, the vast majority of new PhDs who take academic appointments have a postdoctoral position. By contrast, in the mathematical sciences approximately one-half of new PhDs who take academic appointments have a postdoc. In general, postdoctoral appointments in mathematics carry prestige; at the same time, the added responsibilities in terms of teaching mean that postdocs often cannot devote 100% of their effort to their research.

Postdocs bring a youthful vitality and fresh perspective that enhance the quality of research in mathematical sciences departments. While the tradition and nature of postdoctoral training in mathematics are well known within the discipline, the fact that most mathematical sciences postdocs require a significant teaching component is sometimes not well understood by other scholars whose research and training traditions differ.