

Research Brief No. 5

What Are the Characteristics of a Faculty Collaborative Team at Institutions Involved in Undergraduate Science Course Reform?

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The *National Study of Education in Undergraduate Science* (NSEUS), funded by the National Science Foundation, investigated characteristics associated with reformed and non-reformed undergraduate science courses in a population of 103 higher education institutions. These institutions, and one or more of their courses were involved in the NASA/NOVA Program. The NOVA courses were developed and offered at various times beginning in 1996 in a large professional development effort to create reforms in higher education undergraduate, and mostly entry-level, science courses.

The NOVA Program involved collaborative teams of faculty from across the campus and included either the Colleges of Arts and Sciences or Engineering and Education to create courses that were strong in content and pedagogical methods. A 2007 survey investigated the status of the collaborative teams originally associated with the NOVA Program. These teams originally consisted of 354 faculty members, with 37 new faculty members added over time to replace members leaving at 24 institutions.

Faculty collaborative teams seemed to be an important factor in the continuity of NOVA courses at the institutions surveyed. The majority of the institutions no longer offering NOVA courses indicated that changes in the collaborative teams that had developed the courses led to the course lapse. Faculty collaborative teams developing the original NOVA undergraduate science reform courses were not stable at a majority of the NOVA institutions. Teams were one significant factor in sustaining reform.

Only 11 (10%) of the 103 institution teams, remained intact (see Table 1). To be considered intact, the team contained the same members from its inception until 2007. Nine of the institutions with intact teams are still offering the NOVA reform courses, while two are not. Of the remainder, teams that were active at the institution and have one or two original members (n = 51), half were still offering the original reform course, while 10 were not. Twelve institutions (12%) who were still offering the reform courses have completely replaced all faculty members of their original teams, while 19 institutions (18%) whose teams were completely replaced or disbanded, have stopped offering the NOVA reform course. In each of the cases where the teams were completely replaced, the sustained NOVA courses were being taught by new team faculty members added over time.

The reasons given for the replacement or reduction in collaborative team members or the disbanding of the team, were that the team members now had new responsibilities at the institution, members had left the institution, members were now deceased, the need for the NOVA course had decreased, or the institutional budget had decreased. Among those institutions with completely replaced teams where NOVA reform courses were no longer offered, 15 (80%) of the total of 19 teams had lost faculty because they all left the university or were deceased (see Table 1). Once developed, reforms created in the NOVA professional development program have continued in the large majority of cases. The single most important factor in the sustained offering of NOVA reform courses was identified as the continuous functioning of a collaborative team with its' faculty team members remaining at the original institution.

Further discussion of NSEUS findings is available in:

- Sunal, D. & Sunal, C. (2008). What levels of institutions in a national population are reforming undergraduate science courses? *Research Brief No. 1*. Tuscaloosa, AL: The Office of Research on Teaching in the Disciplines. <http://nseus.org> and <http://www.teachingdisciplines.ua.edu>
- Sunal, C., Sunal, D., Sundberg, C., Mason, C., & Lardy, C. (2008). What criteria can be used to identify the level of implementation of reform in an undergraduate science course? *Research Brief No. 2*. Tuscaloosa, AL: The Office of Research on Teaching in the Disciplines. <http://nseus.org> and <http://www.teachingdisciplines.ua.edu>
- Sunal, D., Sunal, C., Sundberg, C., Mason, C., Lardy, C., Zollman, D., & Matloob-Haghanikar, M. (2008). What characteristics are found in reformed and non-reformed undergraduate science courses? *Research Brief No. 3*. Tuscaloosa, AL: The Office of Research on Teaching in the Disciplines. <http://nseus.org> and <http://www.teachingdisciplines.ua.edu>
- Sunal, D., Sunal, C., Steele, E., Ogletree, G., Mason, C., & Zollman, D. (2008). What characteristics are found among institutions still offering and no longer offering reformed undergraduate science courses? *Research Brief No. 4*. Tuscaloosa, AL: The Office of Research on Teaching in the Disciplines. <http://nseus.org> and <http://www.teachingdisciplines.ua.edu>

Table 1
Collaborative Teams at Each NASA/NOVA Institution in 2007

	Team Intact	Two or More Team members Left	One Team Member Left	Entire Team Left Institution	Institutions Adding New Team Members (Number Added)
Reform courses still offered 72 institutions	9	22	29	12	21 (34)
Reform courses stopped being offered 31 institutions	2	3	7	19	3 (3)
Total Teams at 103 institutions	11	25	36	31	24 (37)



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