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Indiana University Post-Master's Degree Certificate Program in Institutional Research

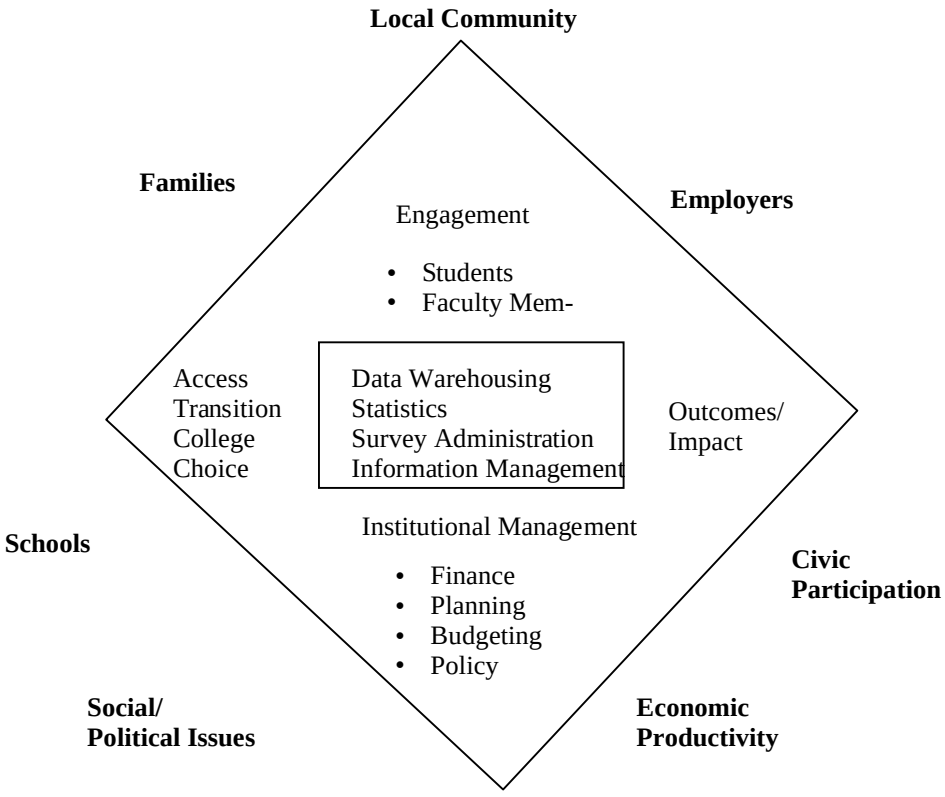
Introduction

The increasingly complicated and challenging tasks of institutional research (IR) demand that IR professionals have a high level of technical skill and competence in such areas as research design, statistics, information technology, and data management. They must also be knowledgeable about how the issues facing American higher education affect their institution's educational, support, and ancillary functions. Indiana University has received a planning grant from the Association for Institutional Research and National Center for Educational Statistics to implement a post-master's certificate program in institutional research. This program is designed to provide a combination of foundational knowledge, technical skills and competencies, along with guided professional practice, that will be very attractive to individual candidates and to the institutions that need their expertise.

Guiding Conceptual Framework

The conceptual framework for the program is represented in Figure 1 as a context-input-process-product model. The large diamond represents the institutional context in which IR work occurs. As with other important college and university functions, IR is influenced by the larger external environment and the particular institutional context in which the work is performed. These external pressures affect the institutional context, which, as in real life, is mediated by the all-but-invisible campus culture and the managerial and educational functions and processes about which

institutional researchers must be knowledgeable. The small rectangle in the center of the institutional diamond represents the core technical skills and competencies required of today's IR professional. Each of these key components will be briefly described.



Interaction of External Environment and Campus Context

Among the more important external factors are social and educational policy, changing demographics, and the nature of schools, communities, employers, regulatory agencies, and so on. Some of the more important features of the institutional context are the school's mission and culture, the scope and nature of the curriculum, the characteristics of faculty members and students, and institutional governance structures and information and communication policies and practices.

Inputs

In terms of students, this domain includes such issues as academic preparation and student characteristics and such policy issues as affordability, access, financial aid, and managing the transition to the college environment. In terms of faculty and staff this component represents issues related to faculty characteristics, graduate preparation, academic and organizational socialization, the faculty pipeline, and the staff labor market

Engagement in Educational Processes

The key to learning (whether defined as outcomes of undergraduate education, faculty scholarship, or professional development) and other forms of productivity is the amount of time and quality of effort one expends in purposeful activities. This cluster represents the activities in which students, faculty members, and others work independently, as well as with one another, in using the institution's human and physical resources to promote their learning and personal and professional development.

Institutional Management Functions

This category of activities includes functions and processes required to insure the highest possible levels of institutional effectiveness and productivity, ranging from providing information about state and federal policy and peer institutions for strategic planning to financial modeling for student aid and faculty compensation to personnel policies and the processes through which the institution makes plans, allocates resources, and evaluates institutional effectiveness.

Outcomes and Products

Increasingly, higher education is being held accountable for using its resources wisely and for providing evidence of its impact on students and other more global measures such

as local and regional economies and quality of life. In terms of students, desired outcomes include knowledge acquisition, vocational preparation, and a host of other more difficult to measure skills and competencies such as critical thinking, civic responsibility, and teamwork to name a few. In terms of faculty members, indices of productivity might include faculty scholarship, teaching effectiveness, and professional and community service activities.

Technical and Foundational Core

The box in the center of Figure 1 represents the core of technical skills and competencies that IR professionals need to do their work. The core includes competencies in research tools and methods (statistics, survey design and administration, analytic software), information management and data administration (data warehousing, institutional information systems development, accessing national data resources), and information technologies (web-development, desktop technologies, communications technologies).

Curriculum

Consistent with this conceptual model, the curriculum for the IU post-master's certificate in institutional research begins with a foundational course that sets the overall context of higher education theory and practice. Students also begin a series of self-paced methodology and technology modules that they will continue to throughout the program. Students fill out their course schedule by selecting from a series of content area courses that cover the different points of the diamond in Figure 1.

The curriculum consists of a blend of existing courses and specially developed modules, some of which will be re-designed, based on sections of existing foundational courses in the higher education and educational inquiry programs and others that will be

developed specifically for the Post-master's Certificate Program. The methodology and technology modules will consist of web-based interactive learning modules that will be made available as both credit and non-credit learning experiences via distance education.

To integrate learning and application, students will be assigned to graduate assistantship positions at approved, mutually negotiated sites and will be jointly supervised by the office or project director in collaboration with the certificate program co-investigators. All participants will continuously enroll in a one-credit pro-seminar in order to regularly discuss their internship experiences; and, they will develop a portfolio of their work throughout the program as evidence of their accomplishments. The pro-seminar will continue in the summer capstone experience at the NCES/NSF national data and policy seminar. Students will be required to incorporate a product of this capstone experience into their portfolios.

Program Sequence

The course and modules are sequenced so that in the first semester of study students gain foundational knowledge about the broad context of American higher education and the purposes and functions of institutional research coterminous with exposure to practical issues in institutional research from their internship. In the second semester and following summer students will concentrate more heavily on acquiring skill and competencies in specific substantive areas and institutional research functions.

Fall semester -- 10 credits

C665: Higher Education Administration (3 credits). Instructor: George Kuh

To provide a common frame of reference and shared cohort experience in the first semester of study all students will take the same foundational course. In this course

students (a) become knowledgeable about pressing issues and topics facing higher education such as quality assurance, assessment of student learning, institutional improvement, and so forth as well as their implications for administrators and various higher education stakeholders; (b) review key management functions and institutional improvement processes; and (c) discuss contextual factors and external forces and trends that influence institutional policy and shape administrator behavior in increasingly complicated colleges and universities.

Students will also take one additional course approved for the Post-Master's Certificate Program from among the following to complement their background, experience, and aspirations:

C670: Finance (3 credits) Instructors: Ed St. John and Douglas Priest

C750: Organizational Theory (3 credits) Instructor: John Bean

C654: History of American Higher Education (3 credits) Instructor: Andrea Walton

U548: Student Development Theory and Research Instructor: Mary Howard-Hamilton

U549: Assessing Campus Environments (3 credits) Instructor: Deborah Carter

Methodology/Technology Modules (3 one-credit modules)

Students will take three one-credit modules during the first semester that are designed to address foundation skills. Vic Borden will take the lead in developing these modules which will be patterned after the types of workshops offered in the AIR professional development institutes. They will be designed as self-paced, web-based learning modules that can also be made available as credit and non-credit distance education opportunities to individuals not enrolled in the program. This includes those

participating in the AIR/NCES sponsored post-master's IR certificate programs at other universities.

First semester modules will include such topics as:

Applied statistics for institutional researchers – A review of basic descriptive and inferential statistics with a focus on the types of applied methods most relevant to institutional research functions (table and chart construction, correlation and regression, sampling error, etc.)

Survey research – An introduction to the practice of conducting mailed, telephone, focus group, interview, and web-based surveys. The focus on this course will be on best practice for design, administration, and report writing.

Desktop software systems for IR –Self-paced introduction to the desktop applications most popular among institutional research professionals—spreadsheet, database, presentation, and word processing. Beginners will have access to NetG, a web-based software tutorial system that is licensed by Indiana University. Upon achieving basic competencies, students will move on to a set of institutional research specific applications that tap into intermediate level software functions.

Information management and data administration – An introduction to the data and information management functions that are central to IR office operations, including census file creation and maintenance, use of archival data systems, and integration of data across systems.

Web page authoring – An introduction to the basic tools and methods of web page creation and website administration.

Internship ProSeminar (C790, 1 credit)

Finally, all students will be assigned an internship site where they will work for 15-20 hours a week in an institutional research office for the fall and spring semester. These placements are available from an array of office and programs on both the Bloomington and Indianapolis campus, as well as in state agencies, research centers, and other colleges and universities throughout Indiana. A seminar will run concurrently with the experience, meeting bi-weekly for which students will earn one credit each of the fall and spring semesters of the program.

Spring semester – 10 credits

As with the first semester, students will take two courses, three 1-credit modules, and participate in an internship experience. Courses currently available from the Higher Education curriculum include:

C750: College and University Cultures (3 credits) Instructor: George Kuh

C750: Access and Equity in Higher Education (3 credits) Instructor: Deborah Carter

C750: Professional Education and Development (3 credits) Instructor: Ed St. John

C695: Academic Problems (3 credits) Instructor: John Bean

Technology/Methodology Modules

Modules available for the spring semester will include topics like:

Topics in advanced statistics – Using a case study approach, students will be introduced to the general linear models (e.g., OLS regression, ANOVA, and causal models), probabilistic and logistic models (e.g., logistic regression, probit/logit, and log linear models), and other algorithmic techniques (e.g., neural networks and decision trees). Case studies will include examples like faculty salary equity, peer institution clustering, and retention studies.

Data warehousing – An introduction to the methods and tools associated with developing data warehouses and data marts. Students will design and build a prototype data mart using a sample of institutional and survey data.

Advanced desktop applications – Further case studies that use more advanced features of spreadsheets, PC databases, presentational software, and word processing. The module will also focus on the integration of information across desktop application tools.

Developing web-data based applications – An introduction to the methods and platforms for deploying dynamically generated institutional information through a website.

Internship ProSeminar (C790, 1 credit)

Summer – 4 credits

NCES/NSF National Data and Policy Seminar (3 credits)

Capstone Seminar (C790, 1 credit**)**

All participants in the five AIR-NCES funded post-master's IR certificate programs around the country are required to attend the summer workshop sponsored by NCES and NSF. NCES pays the expenses for attendance. A one-credit capstone seminar is linked to this experience. Upon their return from the summer workshop, students will complete a synthesizing capstone paper and present it to their peers in the seminar.

Anticipated Number of Program Participants

Indiana University will be able to accommodate at least five new matriculating students per year. We also expect that annually an additional 2-4 currently enrolled doctoral students at the Bloomington and Indianapolis campuses will pursue the Post-master's Certificate sequence of course for preparation in IR. We also anticipate that 4-6

other students on an annual basis will enroll in various IR-specific modules. This does not take into account those individuals studying or working elsewhere who will register for the specially developed Post-master's Certificate modules delivered via distance education.

At this time, the program is being developed for full-time student participation. The methodology/technology modules will be made available more broadly, via distance education to IR professionals and trainees internationally. The program faculty will consider the viability of developing a program sequence for part-time students after the full-time program is underway.

Conclusion

The IU IR post-master's certificate program will (a) provide students with foundational knowledge and skills, (b) prepare students in individually-determined areas of specialization that are attractive to both students and employing institutions, and (c) provide students with opportunities to synthesize and apply what they are learning by working in offices and projects that perform a range of institutional research functions. IR professionals must be prepared in all three of these domains in order to effectively meet an institution's information, research and decision support needs. The hallmark of the program is the intentional integration of theory, research, and practice.