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Research Professional Development Work Team
Survey Report

I. Introduction

In April 2005 a letter of concern was put forth by research staff through Staff Council. This letter identified a number of concern areas including the need for coordinated educational and developmental opportunities. Staff Council identified the following:

> *Educational and Developmental Opportunities: The University currently has an outstanding Learning and Development (L&D) program that is geared primarily to administrative staff, especially those in supervisory roles. We recommend developing a similar program geared to educational and professional development targeted to research staff to enhance mobility within the University of Iowa.*
>
> Staff Council letter to President Skorton, April 19, 2005

As a result, Sue Buckley convened a work team to discuss targeted needs and develop educational opportunities specific to research staff. This team was formed in recognition of the critical need to retain talented research staff and was given the following charge: *to identify competencies that could be obtained through participation in classes, workshops or program series that would enhance the mobility of the UI research staff, especially those staff at the ranks of Research Assistant I, II, III and Senior Research Assistant.*

Committee members:
Diana Boeglin, Research Assistant III, Natural/Health Sciences, Department of Urology
Gerene Denning, Research Scientist, Emergency Medicine
Santhana Velupillai, Associate Research Scientist, Chemistry
Cheryl Reardon, Assistant to VP Research
Phyllis Stumbo, Assistant Research Scientist, Clinical Research Center
Kelly O'Berry, Program Assistant, Human Subjects Office
Maureen McCormick, Director, Learning & Development

II. Identified Educational Priorities for Research Staff

To better understand the educational and professional needs of research staff and to facilitate formation of specific recommendations, a survey was developed in conjunction with Joyce Moore from Testing and Exam Services. Approximately 800 research assistants were surveyed via email, with a resulting 39% response rate (312 RAs). Categories addressed in the survey ranged from basic interpersonal communication skills to advanced and specialized technical research skills. The tables in Appendices A-C list the survey items and currently available resources. On-line learning, classroom instruction, and other educational resources were all considered as potential resources to meet identified educational needs.

Survey data indicate that research assistants seek opportunities to develop professional and scientific skills that would allow them to transition from being primarily technicians to participation as full members of the research team. The skill sets necessary to make this transition include proficiency in hypothesis generation, experimental design, record keeping, data analysis, and data presentation, including preparation of publications. Central to all of these are critical thinking skills related to scientific research.

In order of indicated priority, the top 11 identified needs were:

Identified need (Skill)	SkillSoft	L & D Class	Other UI Resource
1. Various technical/scientific skills	None	None	None
2. Statistical analysis, statistics software and graphing programs	MS Excel only*	None	Yes, for SAS; None for SPSS or Prism
3. Database software	Yes - MS Access only	None	None
4. Graphic design software	Yes - Adobe Illustrator & Photoshop only	None	None
5. Searching online scientific databases	None	None	Yes, through Hardin Library
6. Advanced word processing	Yes - MS Word only*	None	None
7. Reference management	None	None	Yes, through Hardin Library
8. Scientific writing skills	None	None	Some courses offered as part of particular degree programs
9. Resume/CV development	None	Yes	Some courses offered as part of particular degree programs/general short course offerings through L&D HR Career Advising Center
10. Critical and scientific thinking skills	Yes*	None	Journal clubs based in specific departments/programs
11. Poster/oral presentation skills	Yes*	Yes	None

As illustrated in Appendix A, there is a gap in centralized resources for research and technical skills training. Other disparities occur in the areas of statistical and IT software skills, specifically those related to database management and applied statistics (Appendix B). While there are some identified resources in individual research groups, departments, and colleges, it is difficult for research staff to access this information with no central coordination of existing educational resources specifically targeted to research needs.

Although there are centralized training opportunities to increase productivity, workplace effectiveness, and job satisfaction, survey data suggests that research staff members' specialized training needs are not being met. Providing centralized resources for the training and professional development of research staff would significantly contribute to our continued excellence and competitiveness as a research institution.

* This resource may not be appropriately designed for scientific applications. Additionally, no scientific thinking skills are available through SkillSoft.

III. Recommendations

A. Recommendations that can be accomplished with current resources:

1. Develop a central advertising space on the Learning & Development monthly newsletter for research educational opportunities. Target emails to all research assistant staff members asking them to sign on to receive the electronic copy of the monthly L&D newsletter.
2. Link L&D's website information to other departmental and collegiate websites and publications including Staff Council's SharePoint site* for research staff.
   [*Developed by Mary Greer, current Staff Council President]
3. Market existing classroom and on-line coursework to research staff members related to the identified needs including information technology skills, career development, and workplace effectiveness.
4. Develop 1-2 learning opportunities utilizing *Learning Online with SkillSoft* and *Books 24x7* as prerequisite coursework tied to research-specific instruction with volunteer instructors.
5. Appoint a volunteer Research Professional Development Committee that would meet regularly to further define research staff training needs and priorities, in collaboration with Learning and Development, the Office of the Vice President for Research, the Provost's Office, Staff Council, and individual colleges/units, and to assess progress toward defined goals.

B. Recommendations that would require additional resources and/or further coordination with Information Technology Services:

1. Develop and pilot 3-5 learning series that target a research-specific application or need. For example, a workshop series for preparing a poster (outlining the poster, preparing individual components such as text, graphs, and graphics, assembling the poster, and presenting the poster) or a workshop series that covers different aspects of hiring and professional development based on the University of Iowa P&S Classification System.
2. Work with Information Technology Services to develop additional opportunities for research staff members to learn data management and statistical skills that are relevant to research applications.
3. Develop discussion groups to support users of technical software not currently supported by ITS.
4. Identify staff support, either through existing resources and/or a new position, to coordinate both existing research resources and to identify and prioritize educational opportunities to be offered on an ongoing basis.
5. Recommend further consideration of the interdisciplinary master's program given that 58% of survey respondents indicated they would consider entering such a program if available.
6. Survey principal investigators to determine their priorities for research staff training needs.

IV. Conclusion

Traditionally, the majority of scientific training of research staff occurs in the individual research group. Additionally, research assistants have a skill set distinct from those of office staff and other non-science professionals. These include skills that are related to:

- A broad range of technical and clinical research skills; the specific needs for which may change over time.
- Simultaneous proficiency in a diversity of computer applications (e.g., Microsoft Office Suite, DNA sequence analysis, advanced statistics programs, Graphic design, Database management).
- Communication and interpersonal skills designed to be effective in the research arena.
- Supervisory and personnel management skills that recognize the unique aspects of research.

Although impact is difficult to measure, potential benefits of centralized resources for research staff training would include:

- A more broadly trained research staff with the capacity to provide more support to principal investigators.
- More efficient training of new staff and re-training of current staff when they change research groups, with a potential for increased productivity.
- Additional training resources for small research groups, thus providing equal advantages for personnel in both large and small research groups.
- Support and training of research staff responsible for lab management and supervision of other staff and students. This could positively impact employee engagement and retention by improving supervisor and employee interactions.
- A greater professionalism of research staff with the capability to succeed in promotional opportunities which become available.

If these recommendations were implemented, this would begin to address many of the concerns brought forward in the initial letter from research members of Staff Council.

Appendices

Appendix A – Complete Listing of Identified Technical/Scientific Skill Needs and Current Capacity to Meet Needs

A.1 – Life Sciences

	Identified need (in order of priority)	Central - L&D or Skillsoft	Other UI Resource
Molecular Biology	PCR technologies	None	DNA facility lists protocols on website but no training
	Gene microarray	None	DNA facility lists protocols on website but no training
	Gene delivery	None	None
	Gene knockout technologies	None	None
Cell Biology	Microscopy techniques	None	Central Microscopy Facility offers some training
	Cell isolation	None	None
	Signal Transduction	None	None
Animal Models	Tissue isolation	None	None
	Knockout mice & colony maintenance	None	None
	Picking the correct model	None	None
Biochemistry	Proteins	None	None
	Enzymology	None	None
	Lipids	None	None
	Carbohydrates	None	None

A.2 – Physical Sciences

Identified need (in order of priority)	Central - L&D or Skillsoft	Other UI Resource
Mass spectrometry	None	None
UV-Vis spectrometry	None	None
NMR spectroscopy	None	CCOM facility offers some courses
Infrared spectrometry	None	None
Surface plasma resonance	None	None
Circular dicroism	None	None
Scanning calorimetry	None	Microcalorimetry facility offers some training

A.3 – Social Sciences

Identified need (in order of priority)	Central - L&D or Skillsoft	Other UI Resource
Data analysis & statistics	None	Department of Biostatistics offers some training for fee to Principal Investigators
Data management	None	-Clinical Trials Statistical and Data Management Center (part of Biostatistics) assists with clinical trials; -College of Public Health offers courses as part of degree program -Some consulting services available from Academic Technologies Research Services
Questionnaire development	None	Biostatistics Consulting Center offers some training for fee to Principal Investigators
Patient recruitment	None	None
Visit/study medication tracking	None	None
Cognitive interviewing	None	None
Study medication management	None	None
ICD-9 codes	None	None
Focus group	None	None
Counseling	None	None
Visual analog scales	None	None

A.4 – Clinical Research

Identified need (in order of priority)	Central - L&D or Skillsoft	Other UI Resource
Preparing a budget	Yes	Sponsored Programs
Preparing for an audit	None	None
Patient recruitment	None	None
Submitting a new project	None	Human Subjects Office offers a website, classes, one-on-one assistance, written research guide
Writing Standards of Practice	None	None
Visit/study medication tracking	None	None
Good clinical practice	None	None
Compliance	None	None
Study medication management	None	None
Taking medical histories	None	None

Appendix B – Complete Listing of Identified IT Needs and Current Capacity to Meet Needs

IT Courses Identified	SkillSoft	Help Desk Support	Consulting	Training
MS PowerPoint	√	√	*	*
MS Excel	√	√	*	*
MS Access	√	√	√	None
MS Word	√	√	*	*
MS Project	√	None	None	None
Adobe Photoshop	√	None	*	*
Adobe Illustrator	√	None	*	None
SAS	None	√	*	None
Pub Med	None	None	None	None
Endnote	None	None	None	None
SPSS	None	√	*	None
File Maker Pro	None	√	*	*
Sigmaplot	None	None	None	None
NCBI Blast	None	None	*	*
Prizm	None	None	None	None
Corel Draw	None	None	None	None
Reference Manager	None	None	None	None
Canvas	None	None	None	None
Word Perfect	None	None	None	None
Fox Pro	None	None	None	None

*If a request is made ITS will provide consultation and/or training.

Appendix C–Complete Listing of Identified Professional or Scientific Needs and Current Capacity to Meet Needs

Professional Development Topics Identified by Survey			
Business Courses Identified	**SkillSoft**	**L & D Class**	**Other UI Resource**
Resume/CV	None	√	College of Medicine offers courses as part of degree program HR Career Advising Service
Scientific Writing	None	None	College of Public Health offers courses as part of degree program
Critical Thinking	√	None	None
Presentation Skills	√	√	None
Managing Change	√	√	None
Effective Networking	√	None	None
University Policies & Procedures	None	√	None
Communication with Peers	√	√	None
Budget Management	√	√	None
Interviewing Skills	√	√	HR Career Advising Service
HR Management	√	No (available only to HR Reps)	None
Negotiation Skills	√	None	None
Communications with Supervisor	√	√	None
Managing Conflict	√	√	None
Managing Change	√	√	None
IRB, ACURF Compliance	None	None	Human Subjects Office; Animal Care Facility
Purchasing	None	√	None
Lab/Clinical Study Management	None	None	The Program in Translational Biomedicine offers courses as part of degree program
Focus Groups for Data Collection	None	√	The Program in Translational Biomedicine offers courses as part of degree program