



*The Skills Development Course at the University of Virginia provides cardiothoracic surgery residents and junior faculty with hypothesis-driven research training in clinical research in order to foster their development into independent academic researchers.*

Program Directors Irving L. Kron and Karen C. Johnston provide oversight to the course. Dr. Kron, Professor of Surgery, Chair of the Department of Surgery provides ongoing leadership in the training and development of surgeons in this specialty. He is the former Chair of the cardiac subcommittee of the American Board of Thoracic Surgery and former Chair of the Thoracic Surgery Residency Review Committee and currently serves as the PI of the longest continuously funded NIH T32 Training Grant in cardiothoracic surgery. Dr. Johnston, Professor and Chair for Neurology at UVA, has a secondary appointment as a Professor in the Department of Public Health Sciences and has received formal training with a Masters' degree in clinical investigations and outcomes research. She is identified nationally as a clinical trial expert and is PI of the NIH-NINDS funded R25 training grant held at UVA.

The Skills Development Course is structured such that trainees are formally trained in health services and outcomes research as well as cardiothoracic clinical trials. Each trainee devotes two full-time years to their research training (no clinical service responsibilities will be permitted during training). The majority of trainees are expected to be either general surgery or cardiothoracic resident physicians or new faculty members holding an MD (or possibly a DO) who have a clear career goal to become researchers in cardiothoracic surgery.

*Application Process:* Candidate trainees are expected to apply at least one year before starting the fellowship. They will meet with potential mentors, which must include at least one member of the Program Administration. The candidates are expected to submit to the Steering Committee: 1) a training plan: to include research plan, choice of mentor(s), and coursework; 2) summary of prior experience in research, 3) educational experience in research methodology and research ethics, 4) a statement of how their proposed research training will fit with their career goals, 5) curriculum vitae and prior academic record, 6) two letters of recommendation, and 7) alternate funding sources including grant applications submitted or in preparation. Acceptance will be based on the applicant's background and qualifications. Selection will be based on merit only, without bias to gender, race, color, or ethnic origin.

*Grantsmanship:* A vital component of training fellows for research careers is to educate and to mentor them in writing competitive grant applications. They will have a more productive research experience if they formulate their research plans in advance. All trainees will attend the annual American Association for Thoracic Surgery (AATS) Grant Writing Workshop. Trainees will be required to write a formal proposal for their research and to submit it for external funding.

*Core Coursework:* There is a core set of knowledge that is fundamental to a successful career in cardiothoracic research. Thus, this program will include a curriculum that includes the following UVA SOM courses to provide a solid foundation for our trainees:

- **BIMS-7100 Research Ethics:** This course is designed to educate students on topics including conflict of interest, responsible authorship, policies for handling misconduct,

policies regarding the use of human and animal subjects, and data management each of these areas and therein formulate an understanding of responsible conduct in research.

- **PHS-5000 Introduction to Biostatistics:** This course covers the fundamentals in medical statistics and introduces the basics of SAS statistical programming.
- **PHS7450 Database Design and Implementation:** This course introduces the basic principles of database design, function and software.
- **PHS 7070 Health Care Informatics:** This course explores nature and functions of health informatics, application, and major issues for research and development.
- **PHS 7310 Clinical Trials Methodology:** Covers the design and analysis of Phase I-III clinical trials.

**Productivity** All trainees must submit a minimum of two manuscripts as first author to relevant journals during their training period, and we anticipate most trainees will publish substantially more than this. Additionally, they are required to submit a minimum of two abstracts for national meetings for oral or poster presentations.

**Research and Laboratory Management:** A set of proficiencies that is required for success and “survival” as an academic researcher is the development of research and laboratory management. This includes fiscal management, grant writing, manuscript writing, academic productivity, project management, personnel management, time management, career planning, and work and personal life balance issues. Where possible, trainees will be given leadership over the work of one or more technicians who may assist in their work, which will help to teach personnel and project management, and also to have responsibility for tracking and reporting their expenses, including their own time on various projects, which they will report quarterly to their research mentors. This will help with skill development in fiscal and project management.

Some of the survival skills may not be so easily experienced or taught directly in the research project setting. Thus, all trainees will be expected also to participate in two “survival skills” training seminars available through the School of Medicine. These seminars focus on issues relating to postdoctoral trainees in general, as well as professional development issues surrounding academic career paths.

**Surgical Outcomes Meeting:** This bi-weekly meeting is dedicated to researchers performing health services and outcomes research. The meeting is open to all members of the UVA surgical community and biostatisticians who are interested in presenting and discussing current outcomes research projects as well as to provide a platform for the discussion of future projects.

**Lab meetings:** Researchers present their work for critical analysis by other members of the lab during weekly lab/research meetings. Research design, methodology, analysis, pitfalls, and alternative solutions are discussed in this meeting. Research prioritization and resource allocation are also a part of this meeting. When appropriate, collaborating investigators also attend the meeting to discuss joint research initiatives. Their trainees will be expected to present their data several times a year at these meetings, and to discuss feedback and criticism of their work.

**For additional information please contact:**

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