Vanderbilt University Neuropsychology
Post-Doctoral Fellowship Information Packet

Vanderbilt
Memory &
Alzheimer’s
Center
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Neuropsychology Post-Doctoral Fellowship Information Packet
Vanderbilt University Neuropsychology Postdoctoral Fellowship Overview

This post-doctoral fellowship is based within the Department of Neurology of Vanderbilt University and provides specialized training in clinical neuropsychology and cognitive aging. It is intended for a doctoral-level candidate who wishes to develop an academic career that emphasizes a balance of clinical service and clinical research. The position is intended as a two year fellowship but can be renewed up to three years, especially for fellows who receive a National Research Service Award (F32) and wish to devote more time to research activities.

Fellows are part of a National Institutes of Health (NIH)-funded laboratory, where research and clinical training is supported by a dynamic and highly collaborative interdisciplinary program. The fellow will be involved in an active and well-funded clinical research program, under the leadership of Dr. Angela Jefferson, emphasizing risk factors and early detection methods for abnormal cognitive aging.

Fellows participate in research studies through recruitment, participant screening and evaluation, participant feedback, data collection, data analysis, authoring of manuscripts, and grant development. Fellows receive supervision on the screening, evaluation, and feedback of research participants, which provides a subset of clinical training hours for licensure requirements. Several intramural pilot funding sources are available to support the fellow's development of an independent research project, including the Vanderbilt Institute for Clinical and Translational Research. There is also an expectation that the fellow will develop an F32 training grant application during fellowship (i.e., National Research Service Award).

Clinical training is provided in the context of the Vanderbilt Cognitive & Behavioral Neurology Division of the Department of Neurology where neuropsychologists address physician referrals in early detection, differential diagnosis, and treatment planning for geriatric patients with suspected cognitive impairment. Training emphasis is on the refinement of clinical expertise, including clinical interviewing, neuropsychological assessment, case conceptualization, and individualized treatment planning. The position conforms to the Houston Conference guidelines to fulfill requirements for ABPP board certification eligibility in clinical neuropsychology with the expectation that clinical activities, including patient assessments and supervised clinical research participant evaluations, will encompass at least 50% of the fellowship.

Robust didactics are also provided to augment the fellows’ training, such as career development series, scientific communication workshops, grant writing workshops, grand rounds, and journal clubs.

The fellowship stipend is competitive with benefits including health insurance, dental insurance, Vanderbilt University tuition remission, and a modest travel stipend. The fellowship begins between July 1st and September 15th with the specific start date contingent on when the individual candidate completes internships. Consistent with Vanderbilt University Medical Center fellowship appointment guidelines, the fellowship term is for a one year period. Each additional training year requires reappointment through the Vanderbilt Office of Biomedical
Research Education & Training. The fellowship is structured for two-years, during which the trainee completes a minimum of 2000 hours of clinical training; however, some fellows interested in building an academic research career may complete a third year emphasizing programmatic research development.
The Department of Neurology at Vanderbilt University Medical Center

The Department of Neurology at Vanderbilt University Medical Center is committed to providing the highest-quality patient care, conducting cutting-edge research, and training future leaders in neurology, neuropsychology, and neuroscience. Under the leadership of Dr. Robert Macdonald, the Department of Neurology, and neurosciences in general, have undergone a spectacular expansion and growth. The Department of Neurology has increased from 21 faculty members in 2001 to over 60 current faculty members. The number of basic and clinical researchers has increased, which has increased the number of research grants submitted and funded.

The Department of Neurology strives to provide the best neurological care to patients and their families, bringing compassion and expertise to the bedside. The department offers comprehensive clinical care to adult neurology patients, including an average of 1,700 admissions, 1,400 inpatient consultations and 2,500 emergency department consultations annually.
Vanderbilt University Faculty Supporting the Neuropsychology Fellowship Program

There are several Vanderbilt University Medical Center faculty members who support the Neuropsychology Fellowship Program, making it a dynamic and highly collaborative interdisciplinary team. In addition to the training director, Dr. Jefferson, there are several additional primary and affiliate faculty members with a focus on cognitive aging who support various aspects of the program’s training activities as described below:

Fellowship Program Training Director

Angela Jefferson, PhD, is Associate Professor of Neurology at Vanderbilt University Medical Center with a secondary appointment in the Department of Psychiatry. Dr. Jefferson is Director of the Vanderbilt Memory and Alzheimer’s Center in the Department of Neurology and is a faculty member in the Vanderbilt Brain Institute. Dr. Jefferson’s research focuses on two major themes (1) understanding relations between vascular hemodynamics and the pathogenesis and clinical manifestation of Alzheimer’s disease for prevention targets, and (2) early detection of abnormal brain aging in older adults with prodromal symptoms of Alzheimer’s disease. She has published more than 70 manuscripts and book chapters, and she is a reviewer for more than 20 academic journals with both Editorial Board and NIH study section service experiences. She is the recipient of multiple research awards at all training and career levels, including an NIA-funded Ruth L. Kirschstein National Research Service Award (F32), an NIH-funded Building Interdisciplinary Research Careers in Women’s Health Award, two NIA-funded Small Grant Program Awards (R03), an NIA-funded Paul B. Beeson Career Development Award in Aging (K23), an Alzheimer’s Association National Research Award, an NIA-funded Ruth L. Kirschstein National Research Service Award (T32), two NIH-funded Research Project Grant Awards (R01), and an NIA-funded Midcareer Investigator Award in Patient-Oriented Research (K24).

Primary Faculty Members Supporting Fellowship Program

Laura Brown, PhD, is an Instructor in Clinical Neurology at Vanderbilt University. As a licensed clinical neuropsychologist since 2004, she has worked and trained in a variety of inpatient and outpatient settings, including hospital-based and private practice positions. She has clinical expertise and research interests in adult and geriatric neuropsychology, with specialties in neurodegenerative disease/dementia, mild cognitive impairment (MCI), and other neurological and psychiatric disorders.

Katherine Gifford, PsyD, is an Assistant Professor of Neurology at Vanderbilt University. She provides clinical services in the Cognitive and Behavioral Division of Neurology and she is involved in independent and collaborative research projects with the Vanderbilt Memory and Alzheimer’s Center. Her primary research focus is on disorders of aging, dementia, and developing tools for early detection of cognitive impairment. Currently, she is examining the role of cognitive complaint as a preclinical marker of Alzheimer’s disease. Dr. Gifford’s research is funded by an Alzheimer’s Association New Investigator Research Grant. Dr. Gifford is the 2011 recipient of the National Alzheimer’s Coordinating Center Junior Investigator Award. She is also the recipient of an NIA-funded Loan Repayment Program Award. Prior to coming to
Vanderbilt University, Dr. Gifford was also a T32 (National Research Service Award) post-doctoral fellow at the NIA-funded Boston University Alzheimer’s Disease Center.

**Holly Westervelt, PhD, ABPP,** is an Associate Professor of Neurology at Vanderbilt University Medical Center. Dr. Westervelt is board-certified in clinical neuropsychology and is the Director of Neuropsychological Services for the Department of Neurology. She practices as a generalist in neuropsychology, but has particular expertise in aging, degenerative diseases, and multiple sclerosis. Dr. Westervelt is highly dedicated to clinical supervision and has supervised over 50 neuropsychology practicum students, interns/residents, and postdoctoral fellows in her 14 years at Rhode Island Hospital/Alpert Medical School of Brown University prior to coming to Vanderbilt in September 2014. Her research interests include olfaction in neurodegenerative disorders and differential diagnosis of degenerative conditions, and she has particular expertise in data quality control/quality assurance. She has published 40 manuscripts and books/book chapters. Dr. Westervelt is a current associate editor for Archives of Clinical Neuropsychology.

**Affiliate Faculty Mentors Supporting Fellowship Program**

**Leah Acosta, MD,** is an Assistant Professor of Neurology at Vanderbilt University. Her clinical interests are focused on neurodegenerative processes, including Alzheimer’s disease and other related disorders. Her cognitive and behavioral neurology fellowship was completed at the University of Florida under Dr. Kenneth Heilman, where her research centered on creativity and the brain. She is continuing her research at Vanderbilt through her studies for a Masters in Public Health, focusing on dementia and language.

**Susan Bell, MBBS, MSCI,** is Assistant Professor of Medicine at Vanderbilt University. She is the recipient of the Norma B. Anderson Prize in Medicine from Johns Hopkins Hospital and a Physiology Society (UK) Award for Research. Her research interests are focused on the impact and diagnosis of frailty in individuals with cardiovascular disease and the use of non-invasive imaging techniques. Dr. Bell is currently examining the association and long-term impact of frailty on diastolic cardiovascular function and impaired blood pressure augmentation.

**Timothy Hohman, PhD,** is an Assistant Professor in the Department of Neurology. His research aims to identify biomarkers of Alzheimer’s disease risk and progression, particularly focusing on factors related to neuroprotection in those individuals vulnerable to Alzheimer’s related neuropathology. He approaches Alzheimer’s research from a unique perspective that includes (1) an imaging genetic perspective that combines advanced computational genetic and neuroimaging approaches to biomarker detection, (2) a cognitive neuroscience perspective focusing on neural predictors of future cognitive outcomes in cohorts at high-risk of developing Alzheimer’s disease, and (3) a neuropsychological perspective that makes use of available data to better describe the process of normal aging and better define clinical impairment in the course of pathologic aging.
**Clinical Training Facilities**

Post-doctoral clinical training focuses on the refinement of clinical skills, including clinical interviewing, neuropsychological assessment, case conceptualization, and individualized treatment planning, for both general medical neuropsychology and geriatric neuropsychology. Post-doctoral fellows may complete clinical training experiences in the following Neurology Department **Cognitive & Behavioral Neurology Division**. The Clinic is designed to evaluate problems of memory, language, and thinking that can occur with aging. Using clinical and family interview and neuropsychological testing, the clinic provides definitive diagnosis and management of patients with disorders of higher cognitive function.

In addition to the one-on-one supervision received from clinic faculty, on a monthly basis, fellows will select one case from their caseload to present at case-conference with several licensed psychologists, including Drs. Jefferson and Gifford. The purpose of the group supervision sessions is to enhance the fellow's case conceptualization and case presentation skills.
Program Didactics

Numerous didactics and professional development opportunities are available to support the fellow’s training activities, such as an Alzheimer’s disease guest lecture series, brain cuttings, works-in-progress workshops, biostatistical meetings, journal clubs, and Neurology Grand Rounds. The fellow will gain experience in supervision of undergraduate and graduate trainees.

Required Didactics Include:

**Cognitive & Behavioral Neurology Case Conference:** The Division sponsors a 90-minute Consensus Conference in which clinical, neurological and neuropsychological data are reviewed for clinic patients. An interdisciplinary team, including neurologists, neuropsychologists, and geriatric psychiatrists, review these data to achieve a consensus diagnosis, such as mild cognitive impairment or Alzheimer’s disease.

**Vanderbilt Memory & Alzheimer’s Center Guest Lecture Series:** The Center hosts a monthly lecture series for a distinguished national or international guest lecturer to visit for 2 days during the academic year. During each visit, trainees interact with the guest lecturer in a 2-hour private round-table discussion.

**Works-in-Progress Workshops:** This 90-minute biweekly meeting offers an informal venue for interdisciplinary experts at Vanderbilt to share ideas with trainees and foster new collaborations to promote interdepartmental and transdisciplinary relationships. The format involves a Vanderbilt-based guest expert presenting their clinical expertise and ongoing research activities, followed by a group discussion. Recent presenters include psychiatrists, radiologists, endocrinologists, and pathologists.

**Biostatistical Meetings:** This weekly meeting is attended by all trainees and includes the Center’s biostatistical team. The meeting format includes (a) reviewing and discussing new research proposals, (b) reviewing preliminary descriptives, and (c) discussing hypothesis testing results. The group format provides trainees exposure to a diverse range of methodological and statistical approaches (e.g., to date, we have projects using logistic regression, general estimating equations, general linear mixed models, meta-analysis, factor analysis, and item-response theory). Trainees gain knowledge from discussions in selection and application of statistical methodologies.

**Journal clubs:** This 90-minute monthly journal club provides an opportunity for trainees to review key pieces of cognitive aging literature and discuss ideas where we can contribute to improving existing literature. The format is unique. Rather than identifying a single article for review, the identified “leader” for that particular week selects several articles on a focused topic and assigns each attendee to read one article. Then when we meet, the leader introduces the topic and thoroughly reviews their assigned journal article, followed by each attendee highlighting details from their reading. Dr. Jefferson facilitates a group discussion on the selected topic, including integration of findings across the articles reviewed to generate a perspective of the status of the literature (i.e., what do we know and what remains unknown).
Optional:

**Department of Neurology Grand Rounds**: The Department of Neurology Grand Rounds consists of conferences, lectures, and seminars that cover a range of topics in both basic and clinical neuroscience and provide opportunity to interact formally and informally with faculty, fellows, and senior residents. Grand Rounds occurs weekly, on Friday morning. Once a month, Grand Rounds is combined with Neurosurgery, Neuropathology, and Neuroradiology.

**Department of Psychiatry Grand Rounds**: Psychiatry Grand Rounds are intended for students, residents, faculty, and community physicians. Psychiatry Grand Rounds are held weekly on Thursday morning.

**Brain Cuttings**: The Department of Pathology holds brain cutting seminars for residents and other trainees. These seminars include review of gross pathology, anatomy, and preparation of tissue for histopathology. Cases are varied in age and pathology. Seminars occur weekly on Wednesday mornings.

**Department of Neurology Educational Conferences**: Dedicated educational conferences are held at noon each Tuesday (basic sciences), Wednesday (clinical neurophysiology), and Thursday (clinical neurology). A Chairman’s conference is also held on Thursday morning, just prior to the noon session. There is a Stroke conference each Wednesday morning, and various subspecialty conferences are scheduled intermittently. Journal Club meets twice monthly, and research dinners are held quarterly for informal discussion of basic and clinical sciences.

**Center of Science Communication**: The Center for Science Communication at Vanderbilt aims both to help authors of basic biomedical research publish better papers in better journals and to help potential editors gain experience and improve their skills. The Center offers manuscript studios, one-on-one consulting, workshops and lectures, and customized help to potential editors.

**VUIIS Scientific Communication Seminars**: In this seminar series, we explore scientific communication, a key component of the scientific process linking an idea to a published result: from formulating, describing, and defending a research plan; to communicating results in talks, posters, and journal articles.

**Clinical and Translational Scientist Development**: Continued medical discovery and its translation into improved patient care depend on the continued development of well-trained physician and PhD-scientists. Over the last few years, the number of young scientists with career development funding at Vanderbilt and nationally has grown exponentially due to the success of institutionally- and NIH-funded career development programs. The Office for Clinical and Translational Scientist Development provides an integrated career development program for all physician-scientists, regardless of their scope of research, and for PhD-scientists engaged in translational or clinical research.
VUIIS Career Development Series: The aim of this class series is to provide education in non-academic topics that are critical to success in the sciences and engineering. The seminars occur on an approximately quarterly basis and will include a variety of formats (e.g., lecture, panel discussion). Future topics will include “Finding a Job in Academia”, “Finding a Job in Industry”, “Gender Issues”, “Grant Writing”, and “Making a Successful Transition to Faculty Rank.”
Research Training and Collaboration Resources

There are numerous research training and collaborative resources available to support fellowship activities at Vanderbilt University.

Vanderbilt Institute for Clinical and Translational Research (VICTR)
VICTR is Vanderbilt's virtual home for clinical and translational research. Supported by the Vanderbilt Office of Research and the NIH sponsored Clinical and Translational Science Award, the mission of the institute is to transform the way ideas and research discoveries make their way from origin to patient care. This mission is accomplished using a multi-faceted approach: through collaboration with a wide variety of research partners; by training, nurturing and rewarding participating researchers; by funding research; by developing new and innovative ways to involve the community in research; by developing new informatics and biostatistical systems; and by making available the latest technologies and sound research results affecting patient care.

A primary goal of VICTR and its Community Engagement and Research Program (CERP) is to bring together academic and community partners to improve community health through research. VICTR seeks to develop transformative collaborative structures and strategies that will bring Vanderbilt clinical and translational investigators together with academic and community partners to shape and support innovative and community-engaged research. The following are descriptions of VICTR resources available to academic and community partners:

VICTR Clinical Research Center (CRC):
The Clinical Research Center (CRC) provides space, hospitalization cost, laboratories, equipment, and supplies for clinical research. The CRC also serves as a resource for teaching students and a site for research in the methodology of patient care systems and apprenticeship for young clinical investigators. It is equipped and staffed to care for hospitalized patients, with special examination and procedure rooms available for outpatient studies and for scientific protocols requiring a great deal of equipment. Scientific facilities include an assay development laboratory, a body composition and energy balance laboratory, a bionutrition unit with metabolic kitchen, energy and nutrient intake assessment capabilities, a locked medicine room, a specimen procedure room, centrifuges, and freezers for temporary sample storage.

Database Management
We have developed a software application, REDCap (Research Electronic Data Capture), intended to collect and manage data for diverse clinical and translational research studies. The application was designed around the concept of giving research teams an easy method to specify project needs and rapidly develop secure, web-based applications for collection, management and sharing of research data. REDCap Survey was designed for studies where data are collected directly from the research participant. Both products include secure institutional data hosting and include full audit-trails in compliance with HIPAA security requirements.
**Studios**

"Studios" are a series of structured, dynamic sessions bringing together relevant research experts in a particular methodology to focus on a specific stage of research. We offer studios for hypothesis generation, study design, implementation, analysis and interpretation, translation and manuscript development. These sessions are intended to enhance research quality, foster advances in clinical practice and improvements in patient health, increase publications, and generate new hypotheses. A studio consists of 2-6 experienced faculty selected to participate in a guidance session based on specific areas of research and needs identified by the investigator.

**VICTR Pilot Funding**

Providing greater access to funds to help investigators generate pilot and preliminary data is a vital component of Vanderbilt's mission. The Vanderbilt Institute for Clinical and Translational Research (VICTR) provides two mechanisms for awarding funding and resources for translational research. For additional information contact Terri Edwards at 615-322-7342 or terri.edwards@vanderbilt.edu

- **Vouchers**: Micro-grants less than $2,000 designed to enable preliminary work and generation of pilot data on translational research projects. Vouchers are available for clinical and translational research involving human subjects, human information (e.g. medical records) or human records. The submission process is minimal and requests are typically reviewed within two business days.

- **Resource Request**: VICTR funding is available for translational projects that involve human tissue, human information (e.g. medical records), and/or have application to human health. Translational research includes two areas of translation: T1 and T2. T1 is the process of applying discoveries generated during research in the laboratory, and in preclinical studies, to the development of trials and studies in human subjects. T2 is aimed at moving knowledge from clinical trials to clinical practice and the development and adoption of prevention and treatment strategies in clinical and community settings to improve the public's health.

**The Vanderbilt University Institute of Imaging Science (VUIIS)**

The Vanderbilt University Institute of Imaging Science (VUIIS) is a University-wide interdisciplinary initiative that unites scientists whose interests span the spectrum of imaging research - from the underlying physics of imaging techniques to the application of imaging tools to address problems, such as understanding brain function. VUIIS faculty are active in developing novel methods of imaging to obtain new types of information as well as in applying current methods to study a wide range of biomedical questions. VUIIS investigators pursue research in developing new imaging methods as well as applications in cancer, neuroscience, metabolic disorders, cardiovascular disease, and other areas.

The VUIIS has a core program of research related to developing new imaging technology based on advances in physics, engineering, and computer science. It promotes applied research in collaboration with biomedical scientists and physicians who ask important questions that...
imaging can address. In addition to high-field MRI and MR spectroscopy in human subjects, the VUIIS offers state-of-the-art options for small animal imaging in all modalities. Vanderbilt has just completed building a four-floor, state-of-the-art facility adjacent to Medical Center North to house the VUIIS. The $28 million project provides a 41,000-square-foot facility to integrate current activities in imaging research and provides research space for 24 faculty members (including Dr. Donahue) and more than 60 graduate students and postdoctoral fellows in biomedical science, engineering, and physics.

**Vanderbilt Brain Institute**

The Vanderbilt Brain Institute (VBI) was founded in 1999 as a trans-institutional entity to oversee and facilitate the extensive neuroscience-related endeavors carried out at Vanderbilt University. As such, the primary missions of the VBI are to promote research, education and training in the brain-related disciplines at Vanderbilt, with the stated goal of fostering excellence in each of these arenas. One of the primary responsibilities of the VBI is to administer the Neuroscience Graduate Program at Vanderbilt, one of the leading programs in the pre-doctoral training of students interested in neuroscience. The Neuroscience Graduate Program is currently made up of 75 graduate students and 73 training faculty with primary appointments in 13 different departments in 5 colleges, and consistently ranks at the top of national listings of neuroscience graduate programs. The Program has two major emphasis areas: Cellular & Molecular Neuroscience and Cognitive & Systems Neuroscience, and offers research opportunities that span the breadth of contemporary neuroscience. In addition to this educational mission, the VBI also plays major roles in shaping the neuroscience research activities at Vanderbilt, in facilitating postdoctoral training and in community outreach. The VBI sponsors the annual Brain Awareness Month activities, which feature a series of public events designed to promote knowledge about the brain and brain-related illness and dysfunction.

**The Office of Biomedical Research Education and Training (BRET)**

The Office of Biomedical Research Education and Training (BRET) was established in 1999 to support and coordinate graduate education, postdoctoral training, minority affairs, and educational technology initiatives for the Vanderbilt biomedical research community. Dr. Roger Chalkley, Senior Associate Dean, is responsible for the overview of BRET activities.

BRET handles all aspects of the recruitment, application and admissions processes for graduate programs in the biomedical sciences. Graduate programs include the Interdisciplinary Graduate Program, the Chemical and Physical Biology Program, the Medical Scientist Training Program, and the Master of Laboratory Sciences Program. The BRET Office also provides educational technology support, and organizes the Responsible Conduct of Research training which is held each spring.

Included under the BRET auspices are the Office of Postdoctoral Affairs and the Postdoctoral Association, the Office of Career Development and Outcomes Analysis, the Educational Technology Program, and Psychological Services for Biomedical Trainees. Other training programs administered include the Vanderbilt Summer Science Academy for undergraduate
students, Certificate Program in Molecular Medicine, and Vanderbilt International Scholar Program. The BRET Office also maintains a detailed database of research faculty involved in pre- and postdoctoral training as well as a database of current, previous graduate students and postdoctoral fellows.