



F32
BOOT CAMP

From start to submission (grants due December 8, 2019)

Fellowship Applicant Section

SF424 instructions

F.430 - PHS Fellowship Supplemental Form

'Form'

Refers to the fact that all of the listed documents are attached to the same form in the grants submission program (ie CAYUSE)

F.430 - PHS Fellowship Supplemental Form

The PHS Fellowship Supplemental Form is used only for fellowship applications.

This form includes fields to upload several attachments including the Specific Aims, Research Strategy, and Applicant Background and Goals.

The attachments in this form should include sufficient information needed for evaluation of the project and fellow, independent of any other document (e.g., previous application). Be specific and informative, and avoid redundancies.



[View larger image](#)

The screenshot displays the PHS Fellowship Supplemental Form (OMB Number: 050-0001) with several sections for uploading attachments:

- Additional Information Section**: Includes a field for "Other Research Training Plan Section" with a "View Attachment" button.
- Research Training Plan Section**: Includes fields for "Specific Aims", "Research Strategy", "Applicant's Background and Goals for Fellowship Training", "Researcher Contributions", "Selection of Supervisor and Institution", "Fellowship Report Publications List", and "Training in the Responsible Conduct of Research". Each field has a "View Attachment" button.
- Supporting, Collaborative, and Consultative Sections**: Includes fields for "Support and Co-Sponsor Statements", "Letters of Support from Collaborators, Contributors, and Consultants", and "Institutional Environment and Commitment to Training". Each field has a "View Attachment" button.
- Other Research Training Plan Information**: Includes fields for "Veterans Service", "Other Research Training Plan Information", "Related Report Research", "Education Training Plan", and "Authorization of Key Biological and/or Chemical Discoveries". Each field has a "View Attachment" button.

F.430 - PHS Fellowship Supplemental Form

Quick Links

- [Introduction](#)
- [Fellowship Applicant Section](#)
- [Research Training Plan Section](#)
- [Sponsor\(s\), Collaborator\(s\), and Consultant\(s\) Section](#)
- [Institutional Environment and Commitment to Training Section](#)
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F32- Fellowship Supplement Form

- Include sufficient information needed for evaluation of the project, independent of any other document (eg. Previous application)
- Be specific
- Be informative
- Avoid redundancies
- Should be well-formulated and presented in sufficient detail that it can be evaluated for both its research training potential and scientific merit
- It is important that it be developed in collaboration with your sponsor, but it should be written by you

F.430 - PHS Fellowship Supplemental Form

Quick Links

- [Introduction](#) **For Resubmission**
- [Fellowship Applicant Section](#)
- [Research Training Plan Section](#)
- [Sponsor\(s\), Collaborator\(s\), and Consultant\(s\) Section](#)
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F.430 - PHS Fellowship Supplemental Form

Quick Links

- [Introduction](#) **For Resubmission**
- [Fellowship Applicant Section](#) **Research Experience, Goals, Activities**
- [Research Training Plan Section](#)
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F32 – Fellowship Applicant Section

- 6 pages
 - a. Doctoral dissertation and research experience
 - b. Training goals and objectives
 - c. Activities planned under the award

F32 – Fellowship Application Section

- 6 pages
 - a. Doctoral dissertation and research experience
 - b. Training goals and objectives
 - c. Activities planned under the award

There are some excellent examples of all three in BOX

Background and Goals for Fellowship Training – Doctoral Dissertation and Research Experience

- Summarize your research experience in chronological order.
- If you have no research experience, list other scientific experience.
- Do not list academic courses.
- In summarizing your research experience, include the areas studied and conclusions drawn.
- Specify which areas of research were part of your thesis or dissertation and which, if any, were part of a previous postdoctoral project.

A. Doctoral Dissertation and Research Experience

Undergraduate honors dissertation and relevant research experience: My research experience began as an undergraduate student in Dr. Kenneth Shull's lab in the department of Biology at Appalachian State University. As a sophomore, I worked under Dr. Shull for one year to examine female mating behaviors in *Drosophila melanogaster*. In contrast to what we predicted, I was able to show that females preferred mating with vestigial male mutants that are deficient in wing formation. My work contributed to a graduate student's dissertation work, and helped discover a new mating behavior adapted by vestigial males to increase their sexual advantage. Through this sophomore research experience, I gained independence in the lab and fell in love with bench science in the process. This led me to pursue a more intensive research project in the lab of Dr. Melany Fisk at Appalachian State University for my senior honors dissertation. In Dr. Melany Fisk's lab, I worked from my junior year until graduation developing and testing a progressive dilution approach to quickly and thoroughly characterize fungal community composition. This approach allowed us to examine the biotic complexities that underlie responses of forest ecosystems to environmental changes. My research experience in Dr. Fisk's lab not only improved my molecular skills, but it also taught me how to design, perform, and interpret experiments as a critically thinking scientist. From this experience, I established my technical and conceptual foundations as a researcher and discovered that I wanted to pursue a career in science research.

Labeled by time period, specifies undergraduate

Includes the areas studied and conclusions drawn

Tells a story

Indicates what was learned and how it moved him forward

If there were publications or awards, mention these here

Example – courtesy of Carpenter

Postdoctoral Research Experience

During the completion of my doctoral work I felt compelled to utilize my technical training to assist in improving human health care. This interest led me to contact Dr. Rye at Emory University. From this connection Dr. Rye and I submitted a grant proposal to the Facilitating Academic Careers in Engineering and Science organization, a National Science Foundation funded program, from which I was awarded a one-year postdoctoral training grant to study electroencephalogram (EEG) processing in relation to the human sleep cycle. Preliminary results obtained from this project segued into the submission and awarding of a NINDS Diversity Supplement Award in conjunction with Dr. Rye's R01 Grant (NS055015-03) entitled, "Cocaine and Amphetamine Regulated Transcript (*CART*) Regulation of Wakefulness".

Data analysis for the *CART* regulation of Wakefulness project consisted of polysomnogram records from: 21 mice (wild-type; and hetero- and homo-zygous *CART* knock-outs); 9 rats (pre- and post-treatment with CSF fractions from control and hypersomnic humans); and 7 human primary hypersomnic subjects (pre-and post-treatment with flumazenil). Mice and rat spectral analysis processing provided inconclusive results regarding behavioral state assessment. Due to the latter the human primary hypersomnic patient data was focused upon. Spectral analysis processing indicated statistically significant results regarding behavioral assessment pre-and post flumazenil treatment. Results obtained from this analysis are currently being summarized in a manuscript entitled, "Spectral Analysis Methods for Human Idiopathic Hypersomnolence Studies". This project was significant in providing EEG spectral analysis results for humans undergoing flumazenil treatment and diagnosed with idiopathic hypersomnolence, a patient population and treatment combination yet to be studied exhaustively.

Tell a story.

Include what you learned (emphasize trainability)

Include how the experience moved you to the next step

Include field of research and conclusions

Background and Goals for Fellowship

Training –

Training Goals and Objectives

- Describe your overall training goals for the duration of the fellowship
- Explain how the proposed fellowship will enable the attainment of these goals.
- Identify the skills, theories, conceptual approaches, etc. to be learned or enhanced during the award.
- As applicable, discuss how the proposed research will facilitate your transition to the next career stage.

GOALS FOR FELLOWSHIP TRAINING & CAREER

My long-range career objective is to secure a tenure-track faculty position at a medical research oriented academic institution. I intend to work within the Electrical and Computer Engineering Department at a *Research I* university that strongly supports and promotes interdisciplinary medical based research. As a faculty member I will research the human sleep cycle and neurological illnesses with specific emphasis on biological signal processing. My postdoctoral training will provide me with the neuroscience, neuroinformatics, machine learning, and statistical modeling knowledge base needed to successfully pursue my long-range career objectives.

institution. During my tenure at Emory University my fellowship goals include conducting independent research; writing journal publications, participating in conferences and training programs and applying for research grants all requisite skills for a career in academia. I will obtain experience as an independent researcher by conducting the research project outlined in this proposal. Attending weekly sleep medicine and computational data analysis meetings and taking specific courses in these areas, as outlined in the Training Timetable, will further assist me in completing the proposed research. This project will provide me with many opportunities to write for professional journals. Below I have outlined my tentative manuscript list timeline:

Manuscript Title	Journal	Year
Unsupervised Learning for the Detection of Phasic Electromyographic Metric Activity During Human Sleep	<i>Journal of Electromyography & Kinesiology</i>	1
Intelligent Feature Selection Techniques for EMG Activity Quantification for RBD Identification	<i>IEEE Transactions on Biomedical Engineering</i>	2
Pre-Processing Methods for Automated Quantitative EMG Analysis for RBD Identification	<i>International Journal of Pattern Recognition and Artificial Intelligence</i>	2
Computerized PEM Detection as a Clinical Decision Support System for RBD Prognosis	<i>Journal SLEEP</i>	3

Goals of Fellowship Training and Career

My ultimate career goal is to become a principle investigator with my own laboratory at an academic research institution. I hope to study cardiovascular disease using a unique and broad approach that my previous, current, and future training will provide. Both my undergraduate and graduate education were in the field of bioengineering, specifically biomechanics. In this work I used animal models and *in situ* testing to characterize the mechanical and structural changes of arteries that are early markers of clinical disease. This research experience provided me with skills in animal models, mechanical testing, modeling and simulation, and analytical skills. However, while I am able to develop animal models and study physiological changes indicative of disease, I am still acquiring the skills to understand the cellular level changes and signaling responsible for the changes. I plan to use my postdoctoral experience and funding from the NRSA grant to further acquire these additional skills. My work in Dr. Taylor's lab thus far has begun providing me with some of these techniques. However, continued work in the lab will allow me to improve these skills as well as to acquire additional ones to further study more mechanisms of protein expression and cell signaling. The proposed research plan covers a diverse range of skills from evaluating the functional recovery of my animal models using activity wheels and laser Doppler perfusion imaging to determining if the protein RAGE is transcriptionally or post-transcriptionally controlled. The varied scope of the project combines my previous skills and expertise with those that I would like to learn. My goal for my own independent laboratory is to be able to combine my distinctive skill set as an analytical-minded engineer with physiology and cellular biology knowledge that I will learn during my postdoctoral fellowship. I believe that this unique skill set will allow my future lab to study not only downstream indicators of disease such as arterial stiffening, but also the cellular changes responsible for these indicators. I would also like to expand the modeling of my graduate work to incorporate multi-scale changes and signals allowing us to determine which scale is the best at which to intervene to treat or prevent conditions such as cardiovascular disease.

NRSA F32 – The mentored training experience will provide:

- A strong foundation in research design, methods, and analytic techniques appropriate to the proposed research;
- Enhanced ability to conceptualize and think through research problems with increasing independence;
- Experience conducting research using appropriate, state-of-the-art methods, as well as presenting and publishing the research findings as first author;
- The opportunity to interact with members of the scientific community at appropriate scientific meetings and workshops;
- Skills needed to transition to the next stage of the applicant's research career; and
- The opportunity to enhance the applicant's understanding of the health-related sciences and the relationship of his/her research to health and disease.

↳ **Research – techniques/methods, design, analysis, conceptualization, trouble shooting**

Presenting and publishing as first author

Interact with scientific community

Other skills needed for independence (eg managing a lab, personnel, mentoring, teaching, etc)

Enhanced understanding of health-related sciences and the relationship of research to health and disease

Many Examples of Training Goals and Objectives

**Independent investigator
Describe your niche**

Research – design, methods, analysis, conceptualization, techniques

Presenting and publishing as first author

Interact with scientific community

Other skills needed for independence (eg managing a lab, personnel, mentoring, teaching, etc)

Enhanced understanding of health-related sciences and the relationship of research to health and disease

Background and Goals for Fellowship

Training –

Activities Planned Under this Award

- Describe, by year, the activities (research, coursework, etc.) you will be involved in during the proposed award and estimate the percentage of time to be devoted to each activity, based on a normal working day for a full-time fellow as defined by the sponsoring institution; the percentage should total 100 for each year.
- The activities planned under this award should be **individually tailored and well integrated with your research project.**

Background and Goals for Fellowship

Training –

Activities Planned Under this Award

- Describe the skills and techniques that you intend to learn as well as any planned, non-research activities (e.g. those relating to professional development and clinical activities) during the award period.
- Provide a timeline detailing the proposed research training and related activities for the entire duration of the program

Activities Planned Under This Award

If awarded the NRSA fellowship, I plan to devote all of my time to research and other closely related career building activities. The majority of my time will be spent in the lab doing a variety of molecular, cellular, and animal work. To receive feedback on this work, I plan to meet weekly with Dr. Taylor to discuss my progress, future work, and career plans. Additionally, I will also meet at least twice a year with my mentoring committee composed of Dr. Hanjoong Jo and Dr. Alejandra San Martin, two other faculty members in the division. As part of the Division of Cardiology's new postdoctoral mentoring program, I will hold at least 2 committee meetings a year with Drs. Jo, San Martin, and Taylor to help give outside critique and guidance on my work. Dr. Jo is an expert in vascular cell biology and part of the Department of Biomedical Engineering as well as the Division of Cardiology and Dr. San Martin has expertise in ROS and basic cellular signaling and biology. In addition to providing scientific guidance, they both can provide insights into career planning as Dr. San Martin has recently transitioned from a postdoc to faculty and Dr. Jo incorporates both cardiology and biomedical engineering in his research. While required to meet formally as a committee at least twice a year, I plan to meet more frequently with my committee on an individual basis to discuss more work and career plans throughout the year.

Research

Closely related career building activities

Receive feedback

Meetings discuss more than data – design, progress, future, career plans

Meet 2x year with mentoring committee

Scientific guidance, insights into career planning

Publication and grant submission strategies

Other activities to further my career development with which Dr. Taylor provides assistance include manuscript preparation, grant writing, and creating an individual development plan (IDP). This past year, Dr. Taylor has advised me as I have co-authored a manuscript that will be ready for submission in the next month as well as developed and wrote this grant. Additionally, I have been assisting Dr. Taylor with experimental design and preliminary data collection for an RO1 grant.

Manuscript preparation, publication

Grant writing

Individual development plan

Experimental design

Preliminary data collection

		Year 1	Year 2	Year 3
Original Research	Specific Aim 1	X		
	Specific Aim 2	X	X	
	Specific Aim 3		X	X
Presentations	Lab Meetings (weekly)	X	X	X
	Divisional Lab Meetings (bi-annually)	X	X	X
	Emory Symposiums (3/year)	X	X	X
Seminars	Vascular Biology (weekly)	X	X	X
Professional Meetings	AHA/ ATVB	X	X	X
Manuscript Preparation/ Grant Writing	Manuscripts	X	X	X
	K Award course			X
	K Award			X

All planned activities should end up in a timeline table

Instructions indicate that you should provide the amount of time in each activity

Action Item	Year 1 (%)	Year 2 (%)	Year 3 (%)
Research	50	55	46
Course Work	10	5	10
Seminars	10	10	8
Professional Meetings	10	10	8
Laboratory Meetings	5	5	5
Manuscript Preparation	15	10	8
Grant Applications	0	5	15
Total Commitment	100	100	100

So a hybrid of these two tables would work

Approximate Percentage of Proposed Award Time in Activities Identified Below

Year	Research	Coursework	Teaching
First	95%	5%	0%
Second	95%	5%	0%
Third	90%	0%	10%

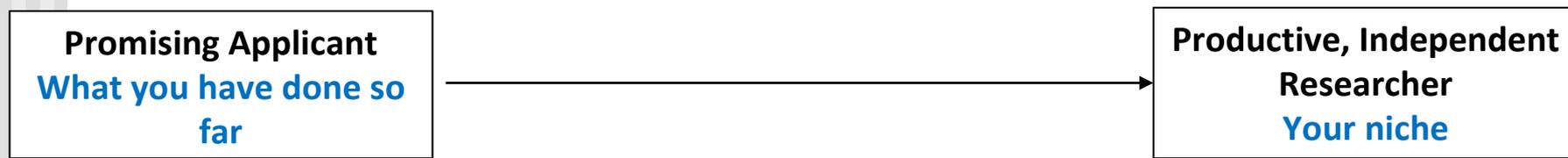
Research Plan Timetable (X = quarter of year)

		Year 1	Year 2	Year 3
Original Research	Specific Aim I	XXXX	XX	
	Specific Aim II		XXX	X
	Specific Aim III			XXXX
Courses	Advanced Techniques in Molecular Neuroscience		X	
	Molecular Approaches to Neuroscience: Gene Expression & Cell Analysis	X		
	Molecular Neurobiology (IBS750)	X		
	Stanford Optogenetic Innovation Lab's course		X	
	Neuroepigenetics	X		
Seminars	Psychiatry Grand Rounds	XXXX	XXXX	XXXX
	Chromatin Club	XXXX	XXXX	XXXX
Professional Meetings	Society for Neuroscience	X	X	X
	Molecular & Cellular Cognition Society	X	X	X
	Gordon Conference: Amygdala			X
Laboratory Meetings	Resler Neurobiology Lab Meeting	XXXX	XXXX	XXXX
	Cheng Biochemistry Lab Meeting	XXXX	XXXX	XXXX
Manuscript Preparation	J. Neuroscience & Biological Psychiatry	XX	XX	XXX
Career Development Workshops		X	XX	XXX
R21 Grant Preparation	Assist sponsor	X	XXX	
K01 Grant Preparation	Initiate as PI		X	XXX

F32- Outlining the training plan



F32- Outlining the training plan



Technique	New way of addressing question	Learn technique	Hands on Workshop Webinar	Provide expertise Send to workshop
Analysis	Deeper understanding	Learn analysis	Meet with Head of stats core	Monthly meeting
Critical Thinking				
Collaboration				
First Author				
Health relevance				



Training Plan tips

- **What does it mean to you to be an independent investigator?**
- **What is your niche?**
- **Does your training plan (what you are going to learn) get you closer to being an independent investigator?**
- **For every goal, is it clear what you are going to do, or who you are going to work with, to achieve that goal?**

Training Plan tips

- **Tell a story – Move from where you have been, to where you want to be, describe how you are going to get there**
- **Outline/table to ensure everything is covered**
 - **Useful for you and your sponsor**
- **You can cover activities to reach a goal as you describe the goal**
 - **Planned Activities section needs to include a timeline (across years) and percentage of time**
- **Look at the examples**