

Grant Writing for Nursing Science: Online Seminar and Application Course

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Learning Objective

- To describe the development and implementation of an innovative and dynamic grant writing didactic and application course combination as a required component of a revised nursing PhD curriculum.

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Background

- AACN The Research-Focused Doctoral Program in Nursing (2010)
 - Role - Develop the Science
 - Expected Outcome - Conduct original research
 - Core Curricular Elements - Prepare research grants
- Research grant writing skills are essential for the nurse scientist, yet formal training in grantsmanship within nursing PhD programs is not common
- 52% of the top 25 PhD in Nursing online programs have a grant writing course
 - <https://www.online-phd-programs.org/best-online-doctoral-programs-in-nursing/>

Purpose

Describe the development and implementation of a two-part grant writing course combination within the revised PhD program curriculum at the University of Kansas School of Nursing

Methods: Curriculum Revision

2017

- Extensive review of current PhD curriculum

2017-2018

- Revised curriculum to reflect contemporary scientific concepts and research methods
- Data science, symptom science, omics, biomarkers, precision health

2018-2019

- Emphasis areas replaced individual minors
 - 1) health systems, 2) symptom science, 3) nursing education
- Course updates in theory and philosophy of science
- Methods courses – combined didactic and application
- Grant writing course combination developed and approved

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University of Kansas School of Nursing						
MS-PhD Full-Time w/ANOVA* before Admission - Preferred Plan of Study						
Students Admitted 2019						
SPMS	Year & Credits	Course Number & Title	Semester	Credit Hours		
				Summer	Fall	Spring
Summer 2019 – Spring 2020	Year 1 15 Credits	NRS0 503 Professionalism & Scholarship Workshop	Summer 2019	1		
		NRS0 877 Foundations in Education and Learning	Fall 2019	1		
		NRS0 996 Philosophy of Nursing Science	Fall 2019		2	
		NRS0 999 Precision Health	Fall 2019		1	
		BIOS 730 Applied Linear Regression	Fall 2019		3	
		NRS0 992 Qualitative Research Methods and Application	Spring 2020			4
		NRS0 946 Measurement Principles and Practice	Fall 2020			1
		NRS0 997 Innovative Models and Theories for Nursing Science	Fall 2020			1
Summer 2020 – Spring 2021	Year 2 13 Credits	NRS0 945 Synthesis Workshop I	Summer 2020	1		
		NRS0 XXX Emphasis Area Course #1	Fall 2020	1		
		NRS0 993 Quantitative Research Methods and Application	Fall 2020		4	
		NRS0 896 Grant Writing for Nursing Science	Fall 2020		1	
		NRS0 898 Grant Writing Application	Fall 2020		2	
		NRS0 994 Foundations of Data Science	Fall 2020		4	
		NRS0 941 Preparing for Doctoral Leadership	Spring 2021			1
		NRS0 990 Advanced Research Methods Course	Fall 2021			2
Summer 2021 – Spring 2022	Year 3 16-18 Credits	NRS0 990 Emphasis Area Course #2	Fall 2021			1
		NRS0 949 Synthesis Workshop II	Summer 2021	1		
		NRS0 XXX Emphasis Area Course #3	Fall 2021	1		
		NRS0 970 Synthesis of Emphasis Area of Study	Fall 2021		2	
		NRS0 990 Doctoral Research or Dissertation**	Fall 2021		2-3 or 6	
Summer 2022 – Fall 2023	Year 4 6-9 Credits	NRS0 990 Dissertation	Summer 2022	1		
		NRS0 996 Dissertation (if needed)	Fall 2022		6	
Credit Hours without Dissertation = 52						
Total Credit Hours (Including Dissertation) = 67						

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Grant Writing Course Development and Approval Process

- Review of internal and external grant-writing courses (KUMC and NEXus)
- Drafted syllabi for two-part grant writing course – didactic and practicum
- Grant writing course retreat
 - Determine the course content
 - Grant focus (federal/NIH type; NRSA, HRSA, other)
 - Approach and structure in a 16-week semester
- Course development completed following retreat
- Fall, 2018: Approval from School of Nursing committees
- Spring, 2019: Approval from KUMC Graduate Council
- Summer, 2019: Course content and methods further delineated and developed for online delivery via Blackboard

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NRSG 895 Grant Writing for Nursing Science

COURSE DESCRIPTION

All aspects of preparing grant applications are reviewed including developing the purpose, aims, approach, methods, budget, biosketch, and resources and facilities. The importance of building a research team and identifying suitable funding agencies also will be covered.

COURSE OBJECTIVES

1. Describe the components of a federal (e.g. NIH, HRSA, AHRQ, Foundation grants) research grant
2. Develop and critique the specific aims section of a selected grant mechanism
3. Develop and critique the approach section of a selected grant mechanism

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EVALUATION OF LEARNING OUTCOMES

- 1) Presentations for peer review/critique on each of the major elements of the grant proposal
Specific Aims, Significance and Innovation, Approach.....75%
- 2) Final Proposal and Presentation for Feedback.....25%

Didactic Course: Pass/Fail
Application Course: Letter Grade



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NRSNG 896 Grant Writing Application

COURSE DESCRIPTION

The student will work with their faculty research mentor to develop a federal level grant application (NIH, HRSA, AHRQ, or foundation) in preparation for submission. The funding proposal will be developed in conjunction with the NRSNG 895 Grant Writing for Nursing Science course that provides information related to grant application structure and key issues. The mentor will provide content expertise and will work with the student to develop the specific content for a grant application. The final product will be a grant proposal suitable for submission.

COURSE OBJECTIVES

1. Establish a working relationship with a faculty research mentor
2. Complete a federal level grant proposal suitable for submission for funding.



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EVALUATION OF LEARNING OUTCOMES

METHODOLOGY:

Students will schedule regular meetings with their faculty research mentor over the semester. The faculty research mentor will provide content expertise and supervision of the student in developing parts of the research proposal. The Grant Writing for Nursing Science course will provide overall grant development guidance.

EVALUATION OF LEARNING OUTCOMES:

The faculty research mentor will assign the student a letter grade at the end of the semester, reflecting the quality of the research proposal.

Final Specific Aims: 30%

Final Proposal Packet, including Biosketch, Abstract/Narrative, Specific Aims, and Final Proposal: 70%

Grading Scale:

A	Outstanding	91 – 100%
B	Very Good	80 – 89%
C	Satisfactory	70 – 79%
D	Below Average	60 – 69%
F	Unsatisfactory	≤ 59%



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Course Model and Methods

- Adapted and integrated aspects of a grant writing course designed and taught at Emory University
 - Selected Assignments/learning products
 - Focusing worksheet –
 - Student-Mentor agreement with application course faculty

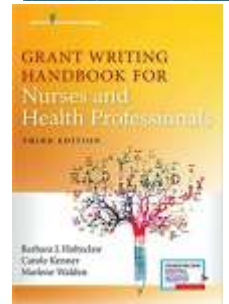
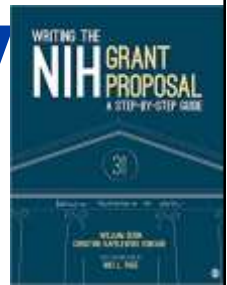
Kahn, R.A., Conn, G.L., Pavlath, G.K. & Corbett, A.H. (2016). Use of a grant writing class in training PhD students. *Traffic*, 17, 803-814. doi:10.1111/tra.12398



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Course Model and Methods

- Online with 14 learning modules that lasted 1- 2 weeks each
 - Modules focused on specific grant elements with NIH style grant proposal as the model
 - Ability for student to tailor their application to grant mechanism and funding source
 - Ongoing development of the grant proposal
 - Reading assignments
 - Panopto presentations – recorded PowerPoint by course faculty or guests
- Synchronous sessions using teleconferencing for:
 - Course Orientation
 - Panel presentation by researchers to exemplify various grant mechanisms
 - Student presentations
 - Specific Aims
 - Final proposal



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Course Model and Methods

- Grant writing ongoing with frequent/continuous review, feedback and guidance by NRSG 896 faculty mentors
- Mentor sign offs on pieces of the application as submitted to NRSG 895 prior to scheduled submissions/presentations; i.e. specific aims, final proposal



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MODULE – CONTENT	DATES	PROCESS ELEMENTS	READINGS AND RESOURCES	DUE DATES
1. Course overview. Selecting a Mentor	Week 1 Aug. 26 – 30	<p>Asynchronous: Panopto Presentation, Readings, Peer Discussion/Blog</p> <p>Synchronous: BB Collaborate - Orientation session <u>August 28, 6-7pm CDT</u></p>	<p>NIH Text: Gerin & Kinkade (2018). <i>Writing the NIH Grant Proposal: A Step-by-Step Guide</i>. 3rd edition. Sage Publications.</p> <p>Chapter 2: Mentoring and Collaborative Relationships</p> <p>Holtzclaw et al. Text Holtzclaw, Kenner, & Walden (2016). <i>Grant Writing Handbook for Nurses and Health Professionals</i>, Third Edition. Springer Publication.</p> <p>Chapter 1: Why Grant Writing Skills Are Needed Now and in the Future Chapter 4: It Takes a Village (and the Village Has a System!)</p>	Student & Mentor Agreement <u>August 30</u>



Student-Mentor Agreement NRSG 895/896 Fall 2019

Student Responsibilities:

- Attendance in virtual synchronous NRSG895 class sessions (5 times over the semester).
- Complete assignments including drafts as due. Incorporate feedback from faculty, mentor, and peers iteratively over the semester.
- Work closely with your mentor to obtain extensive comment feedback on your proposal.
- Establish a schedule with your mentor so you can receive and implement their comments on your work prior to handing in your work.
- Adhere to the style and requirements of the grant format for the course.
- Mentor signatures/e-mails must be provided as required for specific assignments (focusing worksheet, final specific aims and draft full proposal).
- I agree to the course requirements.

Name: _____ Signature: _____

Mentor Responsibilities:

- Work with student to develop the Specific Aims, Research Questions, and Approach for the proposal.
- Allow student to adhere to the specific grant style and requirements for the course.
- Provide student with extensive and timely feedback on their proposal, avoid directly rewriting the student's work (NRSG 896 is a class for a grade).
- Establish a schedule with your student so you receive drafts in time for you to provide feedback and the student to implement the feedback before the assignment is due.
- Provide signature/e-mail as needed for assignments that require mentor validation.
- I agree to the course requirements for my student/mentee.

Name: _____ Signature: _____



NRSB 895 Grant Writing for Nursing Science

Fall 2019

Worksheet for Developing your Project. Work through the following outline to create a 2-3 page paper including:

- 1) One sentence describing the overall "big picture" of your research topic. Second sentence: Why should I care? This point is what convinces us that this proposal passes the "so what" test.
- 2) Why is this topic important to nursing and health?
- 3) What published / preliminary data exist to support the project? (list in bullet points)
- 4) How does your specific project address a gap in this topic?
- 5) What is the overall purpose of this project?
- 6) What is the long-term goal of the research?
- 7) What are research questions you would like to answer?
- 8) How will you go about answering your research question(s)? Give a tentative overview of planned method/approach.
- 9) What is the potential impact of your work? How will it contribute to nursing and/or health?
- 10) What type of proposal – grant mechanism are you planning to use? (e.g. Kirchstein National Research Service Award; AHRQ Health Services Research Dissertation Program [R36])



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The screenshot shows a Canvas LMS interface for the course 'NRSG 695 - Grant Writing Nursing Science (Fall 2018) Williams'. The page title is 'Module 3: Funding Opportunities and Mechanisms'. The left sidebar contains navigation options like 'Home Page', 'Calendar', 'Announcements', 'Start Here', 'Content', 'Discussions', 'Groups', 'My Grades', 'Tools', 'Pages', 'Help', 'Resources', and 'Course Management'. The main content area lists several documents:

- Module 3 Overview**: Attached File: Module 3 Overview (6/20/18)
- Powerpoint - Paragot**: Attached File: Module 3 ppt Presentation (6/20/18). Note: This is the power point presentation used in the Paragot recording.
- NMIR Strategic Plan**
- NMIR Program Officers Areas of Science**: Please review the web resource to determine which program officer's portfolio would best fit your research proposal topic.
- NMIR Funding Opportunity Announcement**
- Sample of Currently Funded NMIR F21 (NMIR) Professional Development Sessions**
- AHRQ Health Services Research Dissertation Program (HSR)**
- NMIR Current Grant Mechanisms**

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The screenshot shows a Canvas LMS interface for the course 'NRSG 695 - Grant Writing Nursing Science (Fall 2018) Williams'. The page title is 'Module 4: Specific Aims, Hypotheses or Research Questions Design'. The left sidebar is identical to the previous screenshot. The main content area lists several documents:


- Module 4 Overview**
- Paragot for Module 4**
- Module 4 Powerpoint**: Attached File: Module 4 ppt Presentation (7/25/18) (6/22/18). Note: This is the power point presentation used for the Paragot recording.
- Your Grant in a Sound Bite**: Williams, D. A., & Rose, J. C. (2018). Specific Aims Description: Your Grants in a Sound Bite. *Journal of undergraduate neuroscience education*. JGNE a publication of the Society for Undergraduate Neuroscience, 18(2), 422-423.
- Example Specific Aims in NIH-funded proposals**: Attached Files: Sample Grant Application - PHS 10/04-10, 18/21 December 01 July (2/20/18) and Sample Grant Application - PHS 10/04-10, 18/21 December 01 July (2/20/18). Note: These NIH grant proposals are provided by the National Cancer Institute on their website. We also want to acknowledge the Principal Investigators: Jeff Wilcox, PhD, University of North Carolina at Chapel Hill and Rebecca Luk, Harvard College. Please refer to these exemplar applications Specific Aims for this module and to other parts of the application throughout the course as it starts.
- Approach Table**: Attached File: Approach Summary Table (2/1/18) (1/14/18). Note: This table was developed by course instructors at the University of Iowa. It facilitates a logical and recursive approach to developing your specific aims. Please use this table to create your own specific aims.

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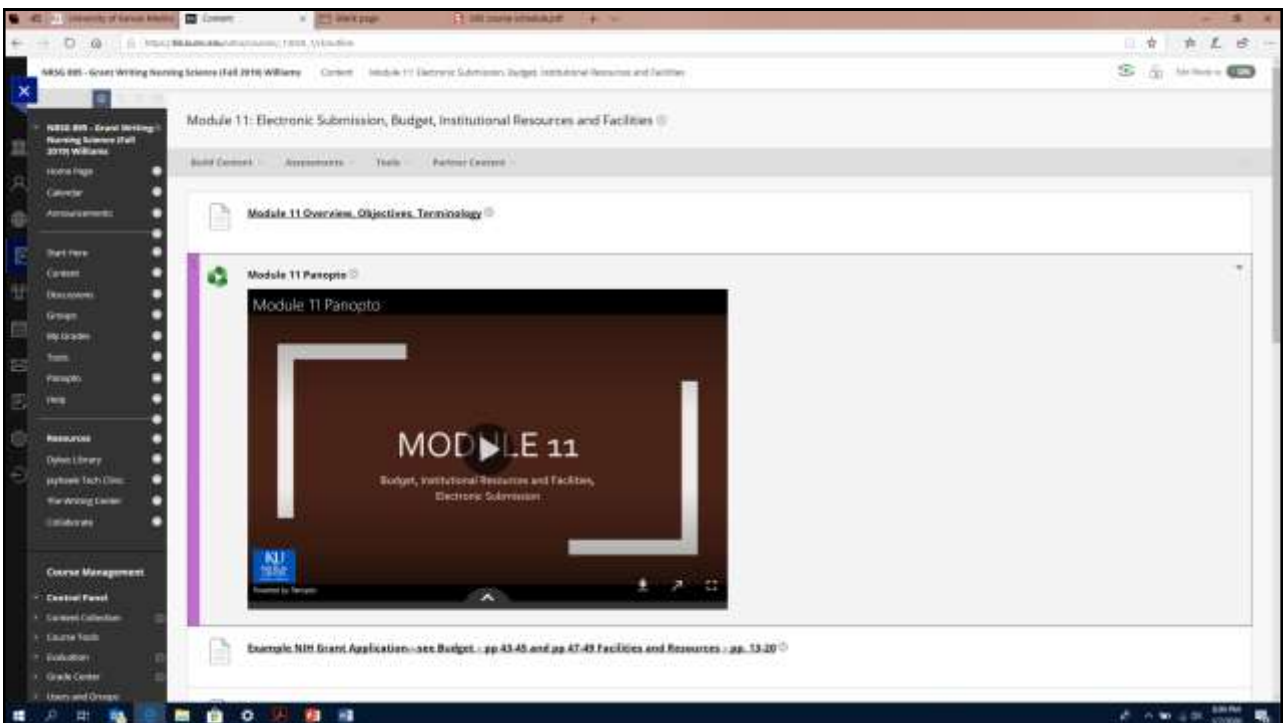
University of Kansas School of Nursing
 NRSG 896 Grant Writing Course
 Specific Aims Evaluation and Peer Review Guideline

Student Name: _____

Criterion	Content to address and questions to answer	Feedback
Format	Specific Aims page should be limited to one page, 11 font with 1/2 inch margins on all sides	
Specific Aims Component	Does the Specific Aims page describe the problem & its significance to health care? Is this an important problem?	
Specific Aims Component	Does the Specific Aims page include a description of the population of interest and the settings in which the problem will be studied?	
Specific Aims Component	Does the Specific Aims page describe the purpose of the study and explain the study design in general with specific information about the sample & setting (e.g., N, groups, location, general entry criteria, measures, procedures)?	
Specific Aims Component	Does the Specific Aims page identify the research question(s) (RQ) or research hypothesis(es) (RH) that correspond with each specific aim?	
Specific Aims Component	Does the Specific Aims page explain the outcomes anticipated and the impact for nursing science/nursing practice (how the problem can be solved or mediated)?	
Specific Aims Component	What will be the effect of this research on concepts, methods, technologies, treatments, services, or preventive interventions that drive this field?	
Other comments		



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The screenshot shows a web browser window displaying a course page. The browser's address bar shows the URL 'https://blackboard.uks.edu/...'. The page title is 'NRSG 896 - Grant Writing Nursing Science (Fall 2019) Williams'. The main content area is titled 'Module 11: Electronic Submission, Budget, Institutional Resources and Facilities'. Below the title, there is a navigation menu with options like 'Build Content', 'Assessments', 'Tools', and 'Partner Content'. The main content area features a video player titled 'Module 11 Panopto' with a play button icon. Below the video player, there is a document icon and a link: 'Example NR Grant Application - see Budget... pp 43-45 and pp 47-49 Facilities and Resources... pp. 13-20'. The left sidebar contains various navigation options such as 'Home Page', 'Calendar', 'Announcements', 'Start Here', 'Content', 'Discussions', 'Groups', 'My Grades', 'Tools', 'Panopto', 'Web', 'Resources', 'Digital Library', 'My Recent Activity', 'My Learning Center', 'Collaborate', 'Course Management', 'Dashboard', 'Current Collection', 'Course Tools', 'Evaluation', 'Grade Center', and 'Users and Groups'.

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Draft Proposal, Presentation, and Final Proposal

1. Draft Proposal to Instructor and Peer by end of day December 2
*(mentor must approve/sign---can be done by e-mail)
2. Peer Feedback – you will receive written and oral feedback at time of presentation December 9, 2019. Meeting will take place at 6pm. We will send a Zoom invite to you. The Grant Proposal Evaluation and Peer Review Guidelines can be used to organize your presentation starting at the Specific Aims section and ending with the Methods section. You may use a PowerPoint presentation. Plan for about 20 minutes for the presentation, followed by feedback session.
3. Given your oral feedback from the presentation and written feedback from the peer/instructor critiques revise proposal and submit final version by end of day December 16.

See the peer review and critique form to be used in this module; you may submit your peer evaluation to your peer (and instructors) following the oral presentation on December 9. Instructors will provide written feedback to you following the presentation too!!

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Peer Review and Critique

Page Limit	Grant Proposal Guide Content to address and questions to answer	Feedback
A. Abstract / Narrative	<ul style="list-style-type: none"> • NIH-style 30-line abstract and narrative page; no more than 2-3 sentences • Written in lay-language • Abstract: Provide the application's broad, long-term objectives and specific aims; concisely describe the research design and methods • Narrative: Provide the relevance that the proposed work has to public health and/or the mission of the agency you are submitting. 	
B. Specific Aims	<ul style="list-style-type: none"> • Describe the problem & it's significance to health care • Include a description of the population of interest & the settings in which the problem will be studied • Describe the purpose of the study & explain the study design in general with specific information about the sample & setting (e.g., N, groups, location, general entry criteria, measures, procedures) • Define the specific aims • Identify the research question(s) (RQ) or research hypothesis(es) (RH) that correspond with each specific aim • Explain the outcomes anticipated & the impact for nursing science/nursing practice 	
C. Significance, Innovation, & Theoretical Framework		
C1. Significance	<ul style="list-style-type: none"> • This section should concisely provide the state of existing knowledge, highlighting relevant data and rationale for proposed research • Explain gaps that the proposed project intends to fill • Critically review relevant scholarly literature & empirical evidence to further describe the problem/health concern & substantiate the need for proposed research 	

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Evaluation – Student Feedback from Inaugural Course

Questions	Student A	Student B
Please comment on the amount, frequency, and substance of instructor critique/feedback regarding the grant application components.	<ul style="list-style-type: none"> - Faculty feedback was substantively sufficient and appropriate for each section. - Feedback was thoughtful and stimulated growth as a doctoral student. 	<ul style="list-style-type: none"> -Received extensive feedback from mentor and faculty -Feedback essential for learning and progress through the course -Feedback was timely
Please evaluate how the coordination between the grant writing didactic and the grant writing application courses worked.	<ul style="list-style-type: none"> - Coordination of courses was sufficient. - Expectations for students were clearly provided and consistent between courses. 	<ul style="list-style-type: none"> -Course was very well thought out. Able to tailor the courses to meet my needs. -The expectations of the two courses were very clear. – Courses were woven together to make a very meaningful program of study.
Comment on the plans for your proposal going forward and any other comments you would like to share with us.	Submitting application to Agency for Health Care Research and Quality in 2020	Submitting application to National League for Nursing in 2020



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Discussion

- Didactic and application courses integrated through frequent communication between faculty from each course pre-course and during course
- Inaugural course well accepted by students
- Both students will submit their applications in February
- Faculty anticipated changes include more frequent feedback on proposal pieces (i.e. feedback as they developed each section of the research plan)



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Sources

- AACN Task Force on the Research-Focused Doctorate in Nursing (2010). *The Research-focused Doctoral Program In Nursing: Pathways To Excellence*. American Association of Colleges of Nursing.
- Kahn, R.A., Conn, G.L., Pavlath, G.K. and Corbett, A.H. (2016). Use of a grant writing class in training PhD students.
- Dahlen, R. (2001). Fundamentals of grant writing. *Nurse Educator*, 26(2), 54-56.
- Rawl, S. M. (2014). Writing a competitive individual National Research Service Award (F31) application. *Western Journal of Nursing Research*, 36, 31-46. doi: 10.1177/0193945913485162.



Questions