

## **NPHD9042 --Applied Multivariate Analysis**

**Fall 2024**

<b>Class Meeting Time and Location</b>	<b>Tuesdays 9:00 am – 11:50 am online via teams (link to be sent in calendar invite) or in room 287N Procter Hall. Dr. Lambert will inform you when class will be in-person vs. online.</b>
<b>Credit Hours/Contact Hours</b>	<b>3 graduate credit hours / 45 contact hours</b>
<b>Faculty Name</b>	<b>Joshua W Lambert, PhD, MS, MS</b>
<b>Email</b>	<b>Joshua.lambert@uc.edu</b>
<b>Phone</b>	<b>513.558.5236</b>
<b>Office Location</b>	<b>275.41 (Dr. Lambert)</b>
<b>Office Hours</b>	<b>By appointment (please email)</b>

### **Course Pre/Co-Requisites**

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Students with an academic program in 29 College of Nursing: successful completion of NPHD9000 and NPHD9040. Permission of instructor required for students in other academic programs.

### **Course Description**

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This course is the second of two which introduce advanced statistical methods in doctoral level nursing research. Multivariate method selection, application, and results interpretation and presentation are stressed in a flipped-classroom / workshop format. Methods introduced include: MANOVA, MANCOVA, factor analysis, principle components analysis, and structural equation modeling. An introduction to power and sample size calculation by method is integrated throughout.

### **Student Learning Outcomes**

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Upon completion of the course, students will be able to:

1. Select the appropriate multivariate analysis method based on research objectives and types of variables to be analyzed.

2. Generate required sample size and power for prototypical analyses by multivariate method, concurrently addressing inclusion of under-represented groups in research.
  3. Display an introductory level ability to manage data and conduct preliminary analyses to assess and address data quality and potential violations of statistical assumptions by multivariate method.
  4. Demonstrate an introductory level ability to generate results, using selected statistical analysis software (e.g., SPSS, JMP, SAS or R), and interpret relevant results generated for each method.
- Pre- & Co-requisites

## Teaching Strategies

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Data analysis and interpretation group workshop, class quizzes, and peer review.

Active learning strategies will be used throughout the semester. Examples of strategies that will be used include: faculty and student-led discussions, short essay papers, creating professional academic documents, and presentations.

The textbook readings and additional resources posted in the modules provide background information so you can explore, learn about, discuss, and debate the use of statistical analysis in research.

Grammar, spelling, and correct statistical formatting are critical components of scholarly written **communication** and all professional communication. Please include references when referring to the work of others.

Canvas will be used to submit assignments and communication. Email will also be used to communicate.

The course website (<https://joshuaw Lambert.github.io/NPHD9042/>) will be used to distribute course materials (lecture notes, videos, homework, project, and other assignments/materials).

## Course Format

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### Electronic Communication Policy

All students are required to register for Canvas. You are expected to check the course canvas and website site (<https://joshuaw Lambert.github.io/NPHD9042/>) regularly.

In addition, you will need access to Microsoft files on the device that you use for the course. If you do not have access to this software on your home device, you can purchase this software at the UC bookstore or use the computers at Procter Hall. You are expected to check the course canvas and website regularly.

You are required to check your UC email account regularly. The faculty will contact you via your UC email account as needed and will not use a personal (non-UC) email account.

## Course Materials

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### Resources

#### BOOKS

- Discovering Statistics Using IBM SPSS Statistics (Topics: Multilevel Models, MANOVA, Factor Analysis, Discriminant Analysis, PCA, Power and Sample Size Calculation) (**\*Optional\***)
  - 4<sup>th</sup> Edition (Paper) approximately \$35 on Amazon
  - 5<sup>th</sup> Edition (Paper) approximately \$65 on Amazon
  - Other options are available.

#### ADDITIONAL RESOURCES

- Lecture notes are available now on the course website (<https://joshuawllambert.github.io/NPHD9042/>).
- Academic Papers related to the topics of interest can be found here: <https://joshuawllambert.github.io/NPHD9042/Articles/articles.html>
- Course related vocabulary and jargon can be found here: <https://joshuawllambert.github.io/NPHD9042/Flashcards/VocabJargon.html>

#### WEB-BASED RESOURCES

- Canvas (<https://uc.instructure.com/login/canvas>) and the course website (<https://joshuawllambert.github.io/NPHD9042/>)
- Lecture videos will be embedded in the course website when necessary.

### Required technology

1. Microsoft Office (Word, Excel)
2. Statistics software
  - a. JMP Version 17 Pro or Higher (Free to all UC CoN Students). Download and install files can be found here: [JMP 17](#). Please do not share this link with anyone else.
  - b. SPSS, STATA, Python, or R can be used. If you choose to use something besides JMP please let me know and we can work out a plan.
3. Internet

## Classroom Procedures/Policies

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### Academic Integrity

The University Rules, including the Student Code of Conduct, and other documented policies of the department, college, and university related to academic integrity will be enforced. Any violation of these regulations, including acts of plagiarism or cheating, will be dealt with on an individual basis according to the severity of the misconduct. For more information, go to [http://www.uc.edu/conduct/Academic\\_Integrity.html](http://www.uc.edu/conduct/Academic_Integrity.html)

Copying other students' or authors' words without using quotes or proper citations in a paper for this course will result in a failing grade for the course. For more information on academic and nonacademic misconduct, go to see [http://www.uc.edu/conduct/Code\\_of\\_Conduct.html](http://www.uc.edu/conduct/Code_of_Conduct.html)

### Special Needs and Accommodations Policy

If you have any special needs related to your participation in the course, including identified visual impairment, hearing impairment, physical impairment, communication disorder, and/or specific learning disability that may influence your performance in this course, you must meet with the Disability Services Office to arrange for reasonable accommodations to ensure an equitable opportunity to meet all the requirements of this course. The Disability Services Office can be contacted at 513-556-6823 or 210 University Pavilion (main campus). The accommodation form you are given needs to be given to the course faculty **as soon as possible** to assure that your accommodation needs can be addressed. For more information, go to <http://www.uc.edu/aess/disability.html>.

### Attendance Policy

**Active participation** in classroom and online discussions/teams chat and activities is a vital component of this course. Please make time for reading and thoughtful reflection. In addition, you will need to spend some time investigating outside resources that you find interesting and applicable to the course topics and share these resources with your peers. Plan to spend a minimum of 8-10 hours per week preparing for course activities and completing assignments.

Students unable to attend class or participate in a class or group activity during a scheduled time period due to a religious belief will be given the opportunity to make up the work or do an alternative assignment. Please note students should plan ahead for assignments in online courses due on dates of religious holidays. This may require the student submit the assignment the day before the religious observance. Additional information can be found at [http://www.uc.edu/registrar/policies\\_and\\_procedures/religious\\_observances\\_statement.html](http://www.uc.edu/registrar/policies_and_procedures/religious_observances_statement.html)

## Late Work Policy

**Assignments** are due by midnight on the date indicated in the course calendar *unless otherwise stated*. Midnight is based on Eastern Daylight Time/Eastern Standard Time as applicable. This time references the local time in Cincinnati for the duration of the course. If you anticipate a conflict with any of the due dates, please contact the faculty by email to negotiate any changes. Assignments submitted late without prior written approval will receive a score of 0%.

## Grade Dispute

Any question or dispute over the earned points for an examination and/or assignment should be addressed by first appealing in writing to the course faculty. An appeal of a negative decision may then be made to the program director, who will follow the grade dispute policy of the University.

## Netiquette

Communication using web-based tools has created the need for a protocol called “netiquette” that encourages efficient and effective communication while discouraging abuse of email, chat sessions, and message boards.

## Grading Policy

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The following scale will be used for grading all course graded activities and deriving the final course grade.

A = 93%-100% of possible points	B- = 80%-82.9% of possible points
A- = 90%-92.9% of possible points	C+ = 77%-79.9% of possible points
B+ = 87%-89.9% of possible points	C = 73%-76.9% of possible points
B = 83%-86.9% of possible points	F = 0%-72.9% of possible points

**NOTE: Grades are NOT rounded in this course.**

There are no extra credit assignments offered for this course. You will be evaluated independently and earn the grade corresponding to the grading scale above.

All College of Nursing graduate students must earn a "B-" grade or better for graduate courses. Students earning grades of "C+" or less will have to repeat the course. Please note that the University of Cincinnati Graduate School requires that graduate students maintain a grade point average (GPA) of at least 3.0 to remain in good standing.

## "I" (INCOMPLETE) COURSE GRADE

No grades of “Incomplete” will be assigned unless there are extreme circumstances AND a contract to complete the work is developed and signed by the student and the faculty prior to the last week of class. It is the student’s responsibility to request for incomplete. Please note a grade of “I” will automatically be converted to an “F” grade one calendar year after the initial grade was assigned. For additional information, go to see [http://www.uc.edu/registrar/faculty\\_resources/grading\\_scales.html](http://www.uc.edu/registrar/faculty_resources/grading_scales.html)

## Detailed Grading Breakdown

### WORKSHOP ATTENDANCE AND PARTICIPATION (13 CLASS WORKSHOPS: 30%)

#### HW (4 HW TOTAL: 30%)

All HW will be given exactly two weeks prior to its due date. HW is meant to assess your understanding of statistical software, conceptual knowledge of methods discussed, data quality issues, and statistical interpretation. Each HW will have a more detailed outline of how points are distributed. **GRADING:**

Methods	10%
Software	10%
Data quality and statistical interpretation	10%
<b>TOTAL</b>	<b>30%</b>

#### PROJECT PROPOSAL (2 PROPOSALS: 1 MIDTERM, 1 FINAL: 10%)

Students will choose a dataset of their liking (Dr. Lambert will provide up to three datasets, but students can choose their own). The student should set up a meeting with Dr. Lambert to discuss their project and planned course of action. Each project will have a required a proposal. The proposal should be 1-2 pages. This proposal should mimic a statistical analysis plan. **GRADING:**

Meeting with Dr. Lambert	2%
Statistical Analysis Plan	6%
Goals	2%
<b>TOTAL</b>	<b>10%</b>

#### PROJECT PAPERS (2 PAPERS: 1 MIDTERM, 1 FINAL: 20%)

Each project will have a required 3-5 page paper. The student's paper is meant to outline the hypothesis of interest, dataset, statistical methods, results, and conclusions. **GRADING:**

Hypothesis	4%
Dataset Description	4%
Statistical Methods	4%
Results	4%
Conclusion	4%
<b>TOTAL</b>	<b>20%</b>

### **PROJECT PRESENTATIONS (2 PRESENTATIONS: 1 MIDTERM, 1 FINAL; 10%)**

Each project will have a PowerPoint slide presentation or poster presentation. Creativity of the presentation is an important aspect of the presentation. All five parts mentioned in the paper (see project paper grading above) should be included with details. Presentations should mimic a conference speed (poster) presentation. Presentations may be in-person, online synchronous, or online asynchronous. Presentations should be around 10 minutes with 5 minutes of questions.

#### **GRADING:**

Creativity	2%
Project Paper components	5%
Questions	3%
<b>TOTAL</b>	<b>10%</b>

### **Grade Breakdown by group:**

Workshop Attendance and Participation: 30%

HW: 30%

Project Proposals: 10%

Project Papers: 20%

Project Presentations: 10%

#### **Withdrawal Policy**

Students who wish to withdraw from the course are expected to notify the instructor prior to withdrawal. Students who have satisfactorily completed course requirements up to the date of withdrawal will be eligible for a "W" grade; however, it is the instructor's right to change the "W" to an "F" if it is determined to be warranted through the final grading process. Be sure to refer to UC Web Registration information regarding other areas that may be affected by course withdrawal:

[http://www.uc.edu/registrar/policies\\_and\\_procedures/withdrawal\\_procedures.html](http://www.uc.edu/registrar/policies_and_procedures/withdrawal_procedures.html)

### **Additional Policies**

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#### **Professional Expectations**

Consistent effective communication and active participation are essential aspects of collaboration; a requirement for this course. Because students in this course are expected to act as responsible nursing professionals, this course requires your consistent and active participation.

#### **FACULTY RESPONSIBILITIES**

- Faculty will foster an environment that stimulates critical reasoning and inquiry.
- Faculty will give students timely and appropriate responses and feedback on assignments.



- Faculty will be available for consultation at appointment times set by student and faculty.
- Faculty will respond to student e-mails (preferred) and phone calls as soon as possible. Please note responses on weekends may be delayed until the following Monday.
- Faculty will implement the course in a manner that promotes mutual respect and cooperative learning.

#### STUDENT RESPONSIBILITIES

- Students will complete reading assignments, be prepared to ask appropriate questions, and discuss coursework.
- Students will be respectful and courteous to faculty and peers in all interactions. **Incivility, pursuant to the student code of conduct, will not be tolerated and will result in the loss of a full letter grade per faculty discretion.**
- Students will notify faculty if unable to complete coursework on time.



## Bearcat Bond

The following information was extracted from the Bearcat Bond available at <http://www.uc.edu/conduct/BearcatBond.html>

Honor Pledge: "On my honor I pledge that this work of mine does not violate the University of Cincinnati Student Code of Conduct provisions on cheating and plagiarism."

Bearcat Bond: "As a member of the University of Cincinnati, I will uphold the principles for a Just Community and the values of respect, responsibility, and inclusiveness. I will promote the highest levels of personal and academic honesty and aspire continuously to better myself, the Bearcat community, and the world."

Just Community Principles:

- "Accept Responsibility" by striving to build a learning community committed to these common values and principles.
- "Celebrate the Uniqueness of Each Individual" by respecting individual differences and promoting common interests.
- "Embrace Freedom and Openness" by working to create an environment that is safe and affirming, one that nurtures independent thinking and the free and open expression of ideas.
- "Practice Civility" by extending to those we meet the same respect, cooperation and caring that we expect from others.
- "Promote Justice" by working to build a learning environment that offers everyone an equal opportunity to grow, flourish and contribute.
- "Pursue Learning and Scholarship" by building on successes, learning from mistakes and pursuing quality in teaching, research and creative endeavors.
- "Seek Integrity" by aspiring to the highest moral and ethical standards.
- "Strive for Excellence" by aspiring to achieve our fullest potential in our educational and personal pursuits."

## Computer Viruses

Computer viruses are dangerous and potentially harmful to all of our computer system. With this in mind, there are three important rules for all students enrolled in this course. **First, you MUST have a current anti-virus program loaded on all computers you use for this online course. Second, your anti-virus software MUST be enabled and set to scan your files at least once a week. Last, your anti-virus software must be supplemented with periodically updated virus definitions provided by the software company. These updates MUST be downloaded and installed at least every month, and preferably every week.** Assignments that are infected with a computer virus (or worm) will not be accepted. If a message or attachment is found to contain a virus by the faculty system scan any additional work from that individual will not be accepted until the student sends a personal message to faculty indicating that your virus definitions have been updated, all files on your system have been scanned for current viruses, and all infected files have been cleaned, deleted, or quarantined.

## Safety

UC Nightwalk is a student organization that provides any UC student, faculty, or staff member transportation to any location within three blocks of campus after dark. Call 513-556-6110 for current operating hours.

## Technology Use for Class

### Technology Support

For first-line technical support for the College of Nursing related to Canopy Tools, please contact the [CoN Office of Learning Design and Digital Innovation \(OLDDI\) Help Desk](#).

#### *CoN OLDDI Help Desk*

- [Submit an online request](#) – log in at the top right of the page.
- Phone: 513-558-5205
- Email: [conhelpdesk@uc.edu](mailto:conhelpdesk@uc.edu)
- Hours: Monday–Friday 7:30 AM–5:00 PM (EST)

#### *IT@UC Service Desk*

If you need technical assistance outside of business hours or to report a problem with Canvas, please contact the Canvas Helpline at (855)745-4413 or use the Help icon in Canvas. For Zoom or another technology, please contact the [Digital Technology Solutions \(DTS\) Service Desk](#).

Go to the [DTS Supports site](#) for the following services:

1. Report an incident
2. DTS Knowledge base
3. My Password – UC password reset
4. Report issue via phone
  - a. 513-556-HELP (4357)
  - b. Toll free: 866-397-3382

#### University of Cincinnati IT Help Desk

Website: <https://www.uc.edu/ucit/help.html>.  
Email: [helpdesk@uc.edu](mailto:helpdesk@uc.edu)  
Phone: (513) 556-HELP (4357)  
Hours: Monday – Friday 7:00 AM – 9:00 PM (EST)  
Saturday-Sunday 8:00 AM – 9:00 PM (EST)  
[Click here](#) for more information about the Help Desk.

UC IT Help Desk is responsible for:

- Providing first level support for data/phone communications and all computing concerns for the faculty, staff, and students of UC, including the mainframe, file servers, email servers (Exchange and Bearcat Online), Blackboard, OZ, and remote access from home
- Software/hardware support for both PCs and Macs

#### **24/7 Canopy Chat & Phone Support**

Phone and chat support are available 24/7 for [Canopy](#) tools such as Blackboard, Box at UC, Echo360, Kaltura, and WebEx. For other IT@UC issues, contact the UCIT Help Desk. [Click here](#) to start a Chat Session for Canopy tools.

#### **Title IX & Mental Health Services**

##### Title IX

Title IX is a federal civil rights law that prohibits discrimination on the basis of your actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also covers sexual violence, dating or domestic violence, and stalking. If a student discloses a Title IX issue to their faculty, the faculty is required to forward that information to the Title IX Office. The Title IX office will follow up with the student about how the University can take steps to address the impact on the student and the community and make the student aware of their rights and resources. Their priority is to make sure students are safe and successful here. Students are not required to talk with the Title IX Office. If you would like to make a report of sex or gender-based discrimination, harassment or violence, or if you would like to know more about your rights and resources on campus, you can consult the website [www.uc.edu/titleix](http://www.uc.edu/titleix) or contact the office at 513-556-3349.

##### Mental Health Services, Clifton Campus

Students have access to counseling and mental health care through the University Health Services (UHS), which can provide both psychotherapy and psychiatric services. In addition, Counseling and Psychological Services (CAPS) can provide professional counseling upon request. Consult CAPS website (<http://www.uc.edu/counseling/>) for scope of services and current fees. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other

issue of concerns. After hours, students may call UHS at 513-556-2564 or CAPS Cares at 513-556-0648. For urgent physician consultation after-hours students may call 513-584-7777.

Distance Learners: CAPS services are limited to distance learners because:

- Distance learners may be out of the local area, and CAPS cannot provide phone counseling according to state law. However crisis intervention can be provided on the after-hour helpline line (513-556-0648) for distance learning students.
- Distance learning students who are on-campus may use the Emergent walk-in if they feel distress. A care manager will offer referrals to students who need crisis intervention or referral.

#### Mental Health Services, Blue Ash Campus

UC Blue Ash Counseling Services provides high quality integrated health, counseling, and wellness services. Mental Health and personal counseling services are free of charge to students who are matriculated as UC Blue Ash College students. Services address student needs such as self-esteem, family conflict, loss and grief issues, adjusting to life's challenges, relationship problems, eating disorders, physical and/or emotional abuse, and domestic violence. Students who want an initial meeting with a counselor can call (513) 745-5670 or stop by Room 140 Muntz Hall to schedule an appointment. If after hours, please call CAPS Cares (main campus) using the 24 Hour Phone Consultation Line at 513-556-0648. The website is <http://www.ucblueash.edu/students/services/counseling-services.html>.

#### Mental Services, Clermont Campus

The Compass Counseling Center provides students assistance in helping to deal with life's stressors and adjustment to college life. All services provided to UC Clermont students are free and confidential. Some of the most common issues addressed at the center include transition to college life, stress from home, classroom performance, depression, anxiety, relationship problems, grief and loss, and substance abuse. Students are welcome and encouraged to walk into the Compass Counseling Center located in the Student Services Building, Room 201. Students may contact the office by calling (513) 732-5263. If after hours, please call CAPS Cares (main campus) using the 24 Hour Phone Consultation Line at 513-556-0648. The website is <http://www.ucclermont.edu/students/compass.html>.

## Sexual Assault Resources

### Sexual Assault

Sexual Assault is offenses including rape, fondling, or statutory rape. Sexual assault includes non-consensual intercourse as well as non-consensual sexual contact.

### Consent

Consent must be verbal, sober, and ongoing. It is also informed, freely given, mutual, and can be withdrawn at any time. A person cannot give consent if he or she is mentally or physically incapacitated or impaired such that the person cannot understand the fact, nature or extent of the sexual situation; this includes impairment or incapacitation due to age, alcohol or drug consumption, or being asleep or unconscious.

### Confidentiality

If you have experienced sexual misconduct and would like to speak confidentially with someone about your reporting options, please consider contacting one of the confidential resources.

### Counseling & Psychological Services (CAPS)

[www.uc.edu/counseling](http://www.uc.edu/counseling) (513) 556-0648 (24 hours)

- Provides free, **confidential** crisis intervention, support groups, advocacy and ongoing individual counseling services to students who have experienced sexual violence, sexual harassment, stalking and/or intimate partner violence while enrolled at UC
- Emergent walk-in services are available during office hours, 8:30 - 4:00pm.
- After-hours helpline staffed by professional counselors available at (513) 556-0648
- Sexual Assault support counselors: Abby Lewis, MA, LICDC, LPCC

### Title IX Office (Sex-Based Discrimination/Harassment & Sexual Violence)

[www.uc.edu/titleix](http://www.uc.edu/titleix)

- Provides investigation and accommodation for students filing a report with the University of Cincinnati at [https://publicdocs.maxient.com/reportingform.php?UnivofCincinnati&layout\\_id=10](https://publicdocs.maxient.com/reportingform.php?UnivofCincinnati&layout_id=10)
- Contact: Karla Phillips, Interim Title IX Coordinator (513) 556-3349

### UC Police & Public Safety

[www.uc.edu/publicsafety](http://www.uc.edu/publicsafety) (513) 556-1111

- The UC Police have a dedicated victim support team available for sexual assault survivors.
- Making a police report and ensuring that evidence is collected is important to preserve the option of prosecution, but it does not mean you have to prosecute.

### Women Helping Women

[www.womenhelpingwomen.org](http://www.womenhelpingwomen.org) (513) 381-5610

- Non-university, community-based free, **confidential** support, accompaniment and advocacy. Located at 215 East 9th St., 7th Floor.
- Provides support groups and hospital, court & police accompaniment
- Walk-in or call 24-hour crisis hotline (513) 381-5610

*Note: Confidential services can be found only using pastoral care, CAPS, and University Health Services. All others trigger a report being filed.*

### **Student Religious Accommodations**

Ohio law and the University's Student Religious Accommodations for Courses Policy 1.3.7 permits a student, upon request, to be absent for reasons of faith or religious or spiritual belief system or participate in organized activities conducted under the auspices of a religious denomination, church, or other religious or spiritual organization and/or to receive alternative accommodations with regard to examinations and other course requirements due to an absence permitted for the above-described reasons. Not later than fourteen days after the first day of instruction in the course, a student should provide the instructor with written notice of the specific dates for which the student requests alternative accommodations. For additional information about this policy, please contact the Executive Director of the Office of Equal Opportunity and Access at (513) 556-5503 or [oeohelp@UCMAIL.UC.EDU](mailto:oeohelp@UCMAIL.UC.EDU).

### **References**

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OAC 4723-5-19. Responsibility of faculty teaching a nursing course. OBN, 2016.

Resolution on Course Syllabi. University of Cincinnati, Faculty Senate. Passed 5.10.2001

Resolution Supporting the Addition of Information Regarding Title IX and Mental Health Services on Student Course Material. University of Cincinnati, Faculty Senate.