

PUBHEPI 6440 – Reproductive and Perinatal Epidemiology
3 credit hours – Spring, 2026

Course Instructor

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Class Time and Location:

Mondays, 2:15-5:00 pm
Cunz Hall 330

Instructor's Office Hours

Available every week of the semester, by appointment.

Faculty Feedback & Response Time:

The following gives you an idea of my intended availability during the course:

- Grading: You can generally expect feedback within 7 days.
- E-mail: I will reply to e-mails (sent via Carmen) within 24 hours on school days.

Course Description

This 3-credit survey course will provide students with an overview of the epidemiology of reproductive and perinatal health issues as well as methodologic challenges unique to the field. Substantive topics to be discussed include issues such as reproductive physiology, fertility, infertility treatment, contraception, common problems of pregnancy, labor and delivery, and perinatal outcomes. Methodologic complexities of studying these areas will be highlighted through critical reading and discussion of published literature.

Prerequisites

PUBHEPI 6410 or PUBHLTH 6001

Course Learning Objectives

Upon successful completion of this course, students will be able to:

1. Describe key aspects of reproductive physiology such as oogenesis, spermatogenesis, gametogenesis, and basic embryology.
2. Provide an overview of the reproductive data collected by the U.S. vital statistics system as well as the strengths and weaknesses of that system.
3. Summarize the state of perinatal health in the U.S. and how it relates to perinatal health in the rest of the world.
4. Describe the normal labor and delivery process as well as the most commonly encountered problems of pregnancy.
5. Describe the various forms of infertility treatment that are currently available.
6. Outline the various methods used to date pregnancies and the strengths and weaknesses of each.

7. List the contraceptive options available in the U.S. and describe how contraceptive effectiveness is calculated.
8. Provide an overview of sexually transmitted infections and their sequelae.
9. List the most common congenital anomalies and outline the difficulties encountered in studying their etiology.
10. Describe the most common types of study designs used in reproductive and perinatal epidemiology and their strengths and weaknesses.
11. Provide an overview of health and lifestyle factors and how they relate to common pregnancy outcomes.
12. Describe how to study infant feeding and outline typical infant development.
13. Describe the most strengths and weaknesses of the most common forms of contraception used in the U.S.
14. Describe the burden of hypertensive disorders during pregnancy and their role in maternal mortality
15. Describe recent trends in maternal and infant mortality.

Competencies:

Foundational public health competencies

1. Apply epidemiological methods to settings and situations in public health practice
4. Interpret results of data analysis for public health research, policy or practice
22. Apply systems thinking tools to visually represent a public health issue in a format other than standard narrative

Epidemiology Specialization competencies

3. Analyze and interpret data obtained from an epidemiologic investigation, including data from surveys, matched and unmatched case-control studies, cohort studies, and clinical trials
5. Demonstrate familiarity with the basic content and issues in at least two substantive areas of application in epidemiology (e.g., cardiovascular, cancer, chronic disease, infectious disease, injury epidemiology)

MS

Epidemiology

6. Identify and understand the impact of potential sources of bias, including selection bias, measurement error and confounding, in epidemiological studies
7. Demonstrate familiarity with the content and issues in at least one substantive epidemiological topic

PhD

Epidemiology

2. Synthesize and critique existing literature in student's area of specialization to identify gaps in the evidence base and justify their importance for public health
7. Identify and address potential sources of bias, including selection bias, measurement error and confounding, in both the design and analysis phases of epidemiological studies
8. Demonstrate familiarity with the content and issues in at least one specific substantive area of epidemiology

Text/Readings:

Optional textbook

Wilcox, Allen J., Fertility and Pregnancy: An Epidemiologic Perspective. Oxford University Press. 2010.

Selected readings

See course outline.

Carmen

There is a Carmen site for this course: <https://carmen.osu.edu>. All course materials are available via Carmen.

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (<https://admin.resources.osu.edu/buckeyepass/adding-a-device>)
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application (<https://admin.resources.osu.edu/buckeyepass/installing-the-duo-mobile-application>) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

Class Format:

- **Mode of delivery:** This course will meet in person at the assigned time and will be a combination of lecture and discussion.
- **Credit hours and work expectations:** This is a **3-credit-hour course**. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (e.g., lecture, discussion) in addition to 9 hours of homework/active learning activities (e.g., reading, writing, preparing presentations) to receive a grade of (C) average.
- **Attendance and participation requirements:** While students are expected to attend class, I understand that sometimes conflicts arise. Please let me know to the extent feasible if you expect to miss class on a particular day. If you miss a class, it is your responsibility to get filled in on any missed content. Active participation with the course material is expected and graded.

Course Technology

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)

Required equipment

- **Computer:** current Mac (Mac OSX) or PC (Windows 10+) with high-speed internet connection
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Required software

- **Microsoft 365 Copilot (formerly Office 365)**
All Ohio State students are now eligible for free Microsoft 365 Copilot (formerly Office 365). Full instructions can be found at go.osu.edu/office365help.

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at and support for urgent issues is available 24/7.

- **Self-Service and chat support:** <http://it.osu.edu/help>
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu

Assignments/Assessments

Exams: 30%

There will be one exam during this course, a midterm, which will be taken in class and will include multiple choice and short answer question formats. The exam will test the students' mastery of the material presented in the first half of the course. This will be a closed note and closed book exam. If you cannot take the exam at the scheduled time, please reach out to me and we will make alternative arrangements.

Assignments: 20%

A portion of each class will be dedicated to the review of papers from the primary literature. Students will be asked to sign up for a day to serve as the discussant on the paper of their choice that relates to the topic area of the course.

Papers: 35%

In lieu of a final exam, students will be asked to work throughout the semester on a course paper. Students will develop a research question related to a reproductive, perinatal, and child health topic. Students will formulate a research question and justify its public health importance (1 page), review the relevant literature (4 pages), identify a methodologic problem that has limited prior research (1 page), and design a study to answer that question (3 pages), including a discussion of the proposed study's strengths and limitations (1 page).

Class participation: 15%

Students are expected to attend all course sessions all assigned readings and come prepared for discussion with their peers.

Grading

Course points will be assigned to the following weighting scheme.

Activity	% of grade
Midterm	30
Article presentation/discussant	20
Concept brief	5
Course paper	20
Oral presentation of course paper	10
Class participation	15

Grading Scale

A	94 to 100	Outstanding work that reflects mastery of the material and the ability to apply it
A-	90 to <94	Excellent work that reflects mastery of the material
B+	87 to <90	Good work that reflects mastery of most of the material
B	83 to <87	Good work that reflects mastery of some of the material
B-	80 to <83	Good work that reflects mastery of a few aspects of the material
C+	77 to <80	Mediocre work that reflects familiarity with, but not mastery of the material
C	73 to <77	Mediocre work that reflects familiarity with most of the material
C-	70 to <73	Mediocre work that reflects little familiarity with the material
D+	67 to <70	
D	60 to <67	
E	Below 60	

Class Policies

Classroom Norms

As a courtesy to others, students should silence their phones and refrain from activities such as checking e-mail or texting during class.

Copyright Statement

This syllabus and all course materials (e.g., homework assignments, solution keys, course materials) are under copyright by the instructor and cannot be posted elsewhere without written permission of the instructor.

Generative AI Policy

Given that one of the learning goals of this course is to practice scientific communication, the use of generative artificial intelligence (GenAI) tools such as ChatGPT, Gemini, Co-Pilot, Google Translate or other similar platforms is not permitted in this course. Any use of GenAI tools for work in this class may therefore be considered a violation of Ohio State's Academic Integrity policy and Code of Student Conduct because the work is not your own. If I suspect that you have used GenAI on an assignment for this course, I will ask you to explain your process for completing the assignment in question. The unauthorized use of GenAI tools will result in referral to the Committee on Academic Misconduct.

Office of Student Life: Disability Services

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know

immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

Mental Health Services

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling [614-292-5766](tel:614-292-5766). CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at [614-292-5766](tel:614-292-5766) and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

Religious Beliefs or Practices Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#). (Policy: [Religious Holidays, Holy Days and Observances](#))

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee ([Faculty Rule 3335-5-48.7 \(B\)](#)). For additional information, see the [Code of Student Conduct](#).

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

A student who encounters a problem related to his/her educational program has a variety of avenues available to seek resolution. According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, you may take your case to the department chairperson. Specific procedures are outlined in [Faculty Rule 3335-8-23](#), the [CPH Graduate Student Handbook](#), and the [CPH Undergraduate Student Handbook](#). Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office:

Online reporting form at <http://civilrights.osu.edu/>,
Call 614-247-5838 or TTY 614-688-8605,
Or Email civilrights@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Course Outline

Class	Date	Topic	Readings
1	Jan 12, 2026	Introductions & course overview	None
		Reproductive physiology	<u>Background reading:</u> <ul style="list-style-type: none"> Wilcox, Chapter 1
	Jan 19, 2026	NO CLASS – MLK DAY	None
2	Jan 26, 2026	Intro to terminology & perinatal health in the US	<u>Background reading:</u> <ul style="list-style-type: none"> Nguyen RH, Wilcox AJ. Terms in reproductive and perinatal epidemiology: I. Reproductive terms. J Epidemiol Community Health. 2005 Nov;59(11):916-9. Nguyen RH, Wilcox AJ. Terms in reproductive and perinatal epidemiology: I. Perinatal terms. J Epidemiol Community Health. 2005 Dec;59(12):1019-21. Schoendorf KC, Branum AM. The use of United States vital statistics in perinatal and obstetrics research. Am J Obstet Gynecol. 2006 Apr; 194(4) 911-5.
		U.S. vital records systems	<u>Background reading:</u> <ul style="list-style-type: none"> U.S. Standard Certificate of Live Birth: http://www.cdc.gov/nchs/data/dvs/birth11-03final-ACC.pdf U.S. Standard Certificate of Fetal Death: http://www.cdc.gov/nchs/data/dvs/FDEATH11-03finalACC.pdf Assessing the Quality of Medical and Health Data from 2003 Birth Certificate Revision: Data from two states http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_02.pdf
3	Feb 2, 2026	Fertility & fecundity	<u>Background reading:</u> <ul style="list-style-type: none"> Wilcox, Chapters 2 & 9
		Fecundity impairments	<u>Background reading:</u> <ul style="list-style-type: none"> Wilcox, Chapters 11 & 12 Savitz DA, Chan RL, Herring AH, Howards PP, Hartmann KE. Caffeine and miscarriage risk. <u>Epidemiology</u>. 2008 Jan;19(1):55-62.
4	Feb 9, 2026	Clinical miscarriage	<u>Background reading:</u> <ul style="list-style-type: none"> Wilcox, Chapter 11
		Multifetal gestation	<u>Background reading:</u> <ul style="list-style-type: none"> None.

Class	Date	Topic	Readings
5	Feb 16, 226	Infertility treatment	<u>Background reading:</u> <ul style="list-style-type: none"> Assisted Reproductive Technology Surveillance – United States, 2014. http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6406a1.htm Yeung EH, Sundaram R, Bell EM, Druschel C, Kus C, Ghassabian A, Bello S, Yunlong X, and Louis GB. Examining Infertility Treatment and Early Childhood Development in the Upstate KIDS Study. <i>JMAPediatrics</i>. 2016 (170).
		Birth defects	<u>Background reading:</u> <ul style="list-style-type: none"> Wilcox, Chapter 16
6	Feb 23, 2026	Lifestyle during pregnancy	<u>Background reading:</u> <ul style="list-style-type: none"> None.
		Pregnancy weight gain	<u>Background reading:</u> <ul style="list-style-type: none"> Weight gain during pregnancy: reexamining the guidelines. Rasmussen KM, Yaktine AL, Editors. Committee to Reexamine IOM Pregnancy Weight Guidelines. Food and Nutrition Board. Board on Children, Youth, and Families Institute of Medicine and National Research Council of the National Academies. Washington, D.C.: The National Academies Press, 2009. Report Brief; Summary; and Chapter 1.
7	Mar 2, 2026	Obstetric interventions	<u>Background reading:</u> <ul style="list-style-type: none"> None.
		Gestational diabetes	<u>Background reading:</u> <ul style="list-style-type: none"> American Diabetes Association. 14. Management of Diabetes in Pregnancy: <i>Standards of Medical Care in Diabetes-2020</i>. <i>Diabetes Care</i>. 2020 Jan;43(Suppl 1):S183-S192. doi: 10.2337/dc20-S014. PMID: 31862757.
8	Mar 9, 2026	MIDTERM EXAM	
	Mar 16, 2026	NO CLASS – SPRING BREAK	
9	Mar 23, 2026	Infections in pregnancy	<u>Background reading:</u> <ul style="list-style-type: none"> None.
		Student's choice	<u>Background reading:</u> None.

Class	Date	Topic	Readings
e 10	Mar 30, 2026	Research methods	<u>Background reading:</u> <ul style="list-style-type: none"> None.
		Family planning	<u>Background reading:</u> <ul style="list-style-type: none"> Current Contraceptive Use and Variation by Selected Characteristics Among Women Aged 15-44: United States, 2011-2013 http://www.cdc.gov/nchs/data/nhsr/nhsr086.pdf
11	Apr 6, 2026	Maternal and infant mortality	
12	Apr 13, 2026	Women's Health Policy	<u>Background reading:</u>
13	Apr 20, 2026	Infant feeding	<u>Background reading:</u> <ul style="list-style-type: none"> Section on Breastfeeding, Arthur I. Eidelman, Richard J. Schanler, Margreete Johnston, Susan Landers, Larry Noble, Kinga Szucs, Laura Viehmann; Breastfeeding and the Use of Human Milk. <i>Pediatrics</i> March 2012; 129 (3): e827–e841. 10.1542/peds.2011-3552 Rebecca J. Scharf, Graham J. Scharf, Annemarie Stroustrup; Developmental Milestones. <i>Pediatr Rev</i> January 2016; 37 (1): 25–38. https://doi.org/10.1542/pir.2014-0103
		Infant development	<u>Background reading:</u> <ul style="list-style-type: none"> None.
14	Apr 27, 2026	Wrap up and student presentations	

Alignment of Competencies with Assessments

Competencies	Midterm	Discussant	Research Paper	Class Participation
Apply epidemiological methods to settings and situations in public health practice	X	X	X	X
Interpret results of data analysis for public health research, policy or practice	X	X	X	X
Apply systems thinking tools to visually represent a public health issue in a format other than standard narrative	X	X	X	X
Analyze and interpret data obtained from an epidemiologic investigation, including data from surveys, matched and unmatched case-control studies, cohort studies, and clinical trials	X	X	X	X
Demonstrate familiarity with the basic content and issues in at least two substantive areas of application in epidemiology (e.g., cardiovascular, cancer, chronic disease, infectious disease, injury epidemiology)	X		X	X
Identify and understand the impact of potential sources of bias, including selection bias, measurement error and confounding, in epidemiological studies	X	X	X	X
Demonstrate familiarity with the content and issues in at least one substantive epidemiological topic	X		X	X
Synthesize and critique existing literature in student's area of specialization to identify gaps in the evidence base and justify their importance for public health		X	X	X
Identify and address potential sources of bias, including selection bias, measurement error and confounding, in both the design and analysis phases of epidemiological studies	X		X	X