Course Title: Cancer Epidemiology
Course Number: EPID 0601
Course Pre- and Co-requisite(s): PHCO 0502 (Minimum Grade of B)
Course Location: New Brunswick/Piscataway Campus* 
School of Public Health – Room 3A/3B
Newark Campus* 
One River Front Plaza, 10th Floor – Room 1023
Course Date & Time: Thursdays, 3PM-5PM 
Spring 2020 | January 21, 2020 – May 11, 2020
Course Instructor: Adana A.M. Llanos, PhD, MPH, Assistant Professor, Department of Biostatistics & Epidemiology, Name, Degrees, Title, Affiliation, Location, & Contact Information (email and phone)
Office Hours: By Appointment Only
Course Assistant: Marwa Shoaib
Course Website: https://rutgers.instructure.com/courses/55479
Required Smartphone App: Socrative Student – Available (FREE) in the Apple App Store and on Google Play.
Additional/Supplemental Readings/Resources:
- Fundamentals of Cancer Epidemiology, 2nd Edition, Edited by: Philip C. Nasca and Harris Pastides
- Global Epidemiology of Cancer, by Randall E. Harris
- Becoming an Academic Writer: 50 Exercises for Paced, Productive, and Powerful Writing, by Patricia Goodson
Course Description: This course will introduce cancer epidemiology, highlighting current population statistics (i.e., incidence, mortality, survival) and cancer risk factors (including host and environmental factors). Topics and examples from cancer molecular epidemiology research will also be introduced. Additionally, this course will encourage critical thinking and writing about these concepts. Students will increase their knowledge of the cancer burden (globally and in the United States) and obtain advanced skills for critiquing and interpreting published research in the field of cancer epidemiology, as well as for communicating (i.e., oral, written) scientific information, particularly related to topics in cancer epidemiology.
Selected Concentration Competencies Addressed: Each Concentration identifies competencies for each degree offered. The competencies addressed in this course for the MPH in Epidemiology include:
1. Critique epidemiologic literature, assess its strengths and weaknesses, and determine if conclusion(s) are supported;
2. Formulate a specific hypothesis and determine an appropriate study design and analysis plan;
3. Appropriately analyze and interpret epidemiologic data, including large national and state level datasets; and
4. Communicate and present study findings to professional audiences.

Please visit the Concentration webpages on the School of Public Health’s website at sph.rutgers.edu for additional competencies addressed by this course for other degrees and concentrations.

**Course Objectives:** By the completion of this course, students will be able to:

- a. Describe the U.S. and global burden of cancer and the impacts on public health;
- b. Explain global and local patterns of cancer incidence, mortality, and survival;
- c. Discuss the major known risk factors for several common human cancers and evaluate trends in the prevalence of important etiologic factors;
- d. Discuss current modalities for cancer screening and prevention, and evaluate the effectiveness of various strategies for reducing cancer burden;
- e. Identify and discuss controversial topics in cancer epidemiology;
- f. Critique study designs applied in the field of cancer epidemiology, as well as some methodological issues involved in molecular cancer epidemiology studies;
- g. Describe ongoing cancer research among select faculty at Rutgers School of Public Health and Cancer Institute of New Jersey;
- h. Critically evaluate the literature and summarize/synthesize data from the current literature; and
- i. Communicate and present a cancer epidemiology topic to a public health audience.

### Relationships among competencies, course objectives, course sessions, and assessments

<table>
<thead>
<tr>
<th>Competency</th>
<th>Course Objectives(s)</th>
<th>Course Session</th>
<th>Assessment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a, b, c, d, e, f, g, h</td>
<td>1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13</td>
<td>Pre- and post-lecture quizzes; course exam</td>
</tr>
<tr>
<td>2</td>
<td>a, b, c, d, e</td>
<td>1, 2, 9, 10, 11, 12, 13</td>
<td>Homework assignments</td>
</tr>
<tr>
<td>3</td>
<td>a, b, c, e</td>
<td>3, 4</td>
<td>Pre- and post-lecture quizzes; homework assignments; course exam</td>
</tr>
<tr>
<td>4</td>
<td>a, b, c, d, e, f, h, i</td>
<td>7, 14, 15</td>
<td>Homework assignments; flash talk project</td>
</tr>
</tbody>
</table>
Course Requirements and Grading:

- **Expectations:** Students are expected to attend and be prepared for every class session (by completing the course readings before class), as well as to actively participate during classroom activities and discussions. The course includes: five (5) article summary assignments; three (3) article summary peer-reviews; an in-class course exam (midterm); and a flash talk assignment (final project – abstract and brief oral presentation). Students are expected to complete and submit all assignments by the due date and to sit for the midterm exam at the scheduled time. If a student anticipates submitting an assignment late for a serious reason, he/she should contact the Dr. Llanos prior to the scheduled due date to receive permission and determine an agreed upon date for submission. If no arrangement is made, any late assignment will be penalized 5% per day. Similarly, if a student finds that he/she must miss the midterm exam for a serious reason, he/she should contact the instructor prior to the scheduled date of the exam to receive permission to reschedule. Please note, for 3 graduate school credit hours, New Jersey requires 2.5 hours of classroom contact time. At Rutgers SPH, we divide this time into 2 in-class hours plus ½ hour spent doing other class activities (shown as “Online 30” in the course Schedule (beginning on Page 5). It is expected that you are devoting 2-3 hours studying/preparing for every 1 credit hour in class. This equates to approximately 6-9 hours per week for Cancer Epidemiology.

- The final course grade will be determined based on the following activities/assignments, with the respective percentage value assigned to each.

  1. Class participation/Socrative quizzes 5%
  2. Forum posts and online discussions 10%
  3. Article summaries 25%
  4. Peer-reviews (article summaries) 15%
  5. Course Examination 30%
  6. Flash talk 15%
  Total: 100%

- Overall class attendance, preparation and participation in class discussions and performance on Socrative quizzes (5%)
  - Preparation for class each week will entail reading all assigned readings and completing the assigned online activity before class.
  - See Course Schedule (Pages 5-7) for weekly course topics, online activities, assignments due, and assigned readings, which are provided in more details in the Assigned Readings List (Pages 8-10). Readings are assigned from the textbook, as well as from the scientific literature, and elsewhere (as appropriate).
  - Attendance and in-class participation (during every class session) will contribute a maximum of 5% to the final course grade.

- Forum posts and online discussions (10%)
  - Beginning in Week 9, students are required to post at least two (2) topics in Cancer Epidemiology (in the form of a scientific article, media report, or blog post) that highlights a controversial topic relevant to cancer and to discuss this topic on Canvas with classmates.
Participation in online discussions of posts from classmates is also required for full credit.

**Article summaries (25%)**
- Students will independently select and review five (5) articles from the cancer epidemiology literature based on selected topics (see topics below).
- Students will review (summarize – e.g., provide overview, critique the strengths and limitations, propose next steps, etc.) and submit a 1–2-page summary (single-spaced) for each topic.
- Topics for article summaries and due dates are as follows:
  1. Site-specific cancer prevention (e.g., primary, secondary, tertiary prevention) – 02/06/2020
  2. Site-specific risk factor(s) (e.g., association of tobacco smoke exposure with lung cancer) – 02/13/2020
  3. Cancer inequities/disparities topics in the U.S. (e.g., higher rates of thyroid cancer among Blacks in America than other groups) – 02/20/2020
  4. International topics in cancer epidemiology (e.g., site-specific cancer risk associations in a specific country/region) – 02/27/2020
  5. Topics in cancer epidemiology relevant to vulnerable populations or marginalized groups (e.g., HPV-associated cancers among HIV positive individuals) – 03/05/2020

**Peer-reviews (15%)**
- Students will be randomly assigned three (3) article summaries, submitted by their peers, to peer-review.
- Peer-review involves students providing feedback and receiving feedback on each other’s work. Both writing and receiving peer-reviews will help students to improve their writing and develop skills that are part of the scientific process, particularly related to manuscript and grant preparation and submission.
- The assigned peer-reviews will be blinded, so students will not know who reviewed their work nor whose work they personally reviewed.

**Course examination (30%)**
- An in-class, midterm exam will be administered on 03/12/2020.
  - This in-class exam will cover material from assigned readings, lecture slides, and in-class discussions (through Week 7), and will be comprised of multiple choice, True-False, matching, and short-answer questions.

**Flash talk (15%)**
- Students will select a topic in cancer epidemiology or cancer prevention and control and conduct a comprehensive literature search, which will be the focus of a 3-minute flash talk.
- Students will summarize the literature they reviewed and prepare one (1) PowerPoint slide that will be shown on the screen when they present their 3-minute flash talk.
- For this assignment, students must submit the following item (DUE on 04/23/2020):
  - PowerPoint slide (only ONE slide allowed!)
  - 1–2-page summary of their topic (single-spaced), with a bibliography of the articles reviewed
### Grading scale:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>94 – 100</td>
<td>A</td>
</tr>
<tr>
<td>90 – &lt;94</td>
<td>A-</td>
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<tr>
<td>87 – &lt;90</td>
<td>B+</td>
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<tr>
<td>84 – &lt;87</td>
<td>B</td>
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<tr>
<td>80 – &lt;84</td>
<td>B-</td>
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<tr>
<td>77 – &lt;80</td>
<td>C+</td>
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<tr>
<td>70 – &lt;77</td>
<td>C</td>
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<tr>
<td>&lt;70</td>
<td>F</td>
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### Course Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Course Topic</th>
<th>Online 30</th>
<th>Assigned Reading(s)</th>
<th>Assignments/Assessments</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Jan 23</td>
<td>Course intro&lt;br&gt;Overview of cancer epidemiology&lt;br&gt;Pathologic basis of cancer&lt;br&gt;Measures of cancer burden</td>
<td>Video: Conducting a literature search in PubMed</td>
<td>Textbook: Chapters 1-2&lt;br&gt;Articles: #1, #2</td>
<td>NONE</td>
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<tr>
<td>2</td>
<td>Jan 30</td>
<td>Global and U.S cancer statistics&lt;br&gt;Associations of select risk factors (tobacco, alcohol, radiation, and diet) with cancer risk&lt;br&gt;Intro to cancer prevention and control</td>
<td>Cancer screening guidelines on the USPSTF Website – screening recommendations for (1) lung; (2) breast; (3) prostate; (4) colorectal; and (5) cervical cancers.</td>
<td>Textbook: None&lt;br&gt;Articles: #3, #4</td>
<td>NONE</td>
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<tr>
<td>4</td>
<td>Feb 13</td>
<td>Guest Lecturer: Antoinette “Nan” Stroup, PhD Associate Professor, Department of Biostatistics and Epidemiology, Rutgers School of Public Health Director, New Jersey State Cancer Registry (NJSCR)</td>
<td>Did you Know? Video Series at seer.cancer.gov&lt;br&gt;Topics:&lt;br&gt;-Cancer Health Disparities&lt;br&gt;-Cancer Survivorship</td>
<td>Review information on Cancer Epidemiology Services and the NJSCR, and the NCI SEER Program websites</td>
<td>Article Summary #2</td>
</tr>
<tr>
<td>Date</td>
<td>Notes</td>
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</tbody>
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| 5 Feb 20 | » Site-specific descriptive epidemiology of:  
| | - Oropharyngeal cancers  
| | - GI cancers  
| | - Lung cancer  
| | - Skin cancer  
| | - Breast cancer  
| | - Gynecologic cancers  
| | **Did you Know?** Video Series at seer.cancer.gov  
| | **Topics:**  
| | - Hepatitis and Liver Cancer  
| | - Human Papillomavirus (HPV)  
| | **Textbook:** Chapters 7, 9-19  
| | **Articles:** None  |
| Article Summary #3 |
| 6 Feb 27 | » Site-specific descriptive epidemiology of:  
| | - Prostate cancer  
| | - Bladder cancer  
| | - Kidney cancer  
| | - Brain & CNS cancers  
| | - Thyroid cancer  
| | - Non-Hodgkin lymphoma  
| | - Leukemias  
| | - Childhood cancers  
| | **Did you Know?** Video Series at seer.cancer.gov  
| | **Topics:**  
| | - Brain and Other Nervous System Cancers  
| | - Leukemia Statistics  
| | **Textbook:** Chapters 20, 22-25, 27-28  
| | **Articles:** None  |
| Article Summary #4 |
| 7 Mar 5 | » Jeopardy: Cancer Epidemiology Edition  
| | **Review:**  
| | - All course notes and materials in preparation for the course exam  
| | **Textbook:** All assigned  
| | **Articles:** All assigned  |
| Article Summary #5 |
| 8 Mar 12 | **COURSE EXAM**  
| | **Review:**  
| | - Peer-review student guide and online resources  
| | **Textbook:** All assigned  
| | **Articles:** All assigned  |
| NONE |
| -- Mar 19 | *****SPRING BREAK*****  
| | **--**  |
| -- |
| 9 Mar 26 | **Guest Lecture:**  
| | Stacy N. Davis, PhD  
| | Instructor, Department of Health Behavior, Society and Policy  
| | Rutgers School of Public Health  
| | » Cancer Prevention and Control and Community-Based Participatory Research (CBPR)  
| | **Forum posts and online discussions**  
| | **Textbook:** None  
| | **Articles:** #5, #6  |
| Peer-review #1 |
| Date  | April 2 | Guest Lecture: Trishnee Bhurosy, PhD  
Postdoctoral Fellow, Division of Population Science  
Rutgers Cancer Institute of New Jersey  
» Prevalence of Cancer and Risk Factors in Mauritius: What Can be done in a Unique Island Setting? | Forum posts and online discussions | Textbook: None  
Articles: #7, #8, #9 | Peer-review #2 |
|---|---|---|---|---|
| Date  | April 9 | Guest Lecture: Bo "Bonnie" Qin, PhD  
Instructor, Cancer Epidemiology & Outcomes  
Rutgers Cancer Institute of New Jersey  
» Nutrition and Cancer Epidemiology: Methodology and Application | Forum posts and online discussions | Textbook: None  
Article: #10 | Peer-review #3 |
| Date  | April 16 | Guest Lecture: Jennifer Tsui, PhD, MPH  
Assistant Professor, Cancer Epidemiology & Outcomes  
Rutgers Cancer Institute of New Jersey  
» Cancer Care Disparities: Multilevel Factors that Impact Cancer Prevention and Outcomes | Forum posts and online discussions | Textbook: None  
Articles: #11, #12, #13 | NONE |
| Date  | April 23 | Guest Lecture: Pamela Valera, PhD, MSW  
Assistant Professor, Department of Urban-Global Public Health  
Rutgers School of Public Health  
» Cancer Health Justice Lab: An introduction to disparities work for people living in the margins | Forum posts and online discussions | Textbook: None  
Articles: #14, #15 | Flash talk deliverables are due |
| Date  | April 30 | STUDENT FLASH TALKS  
Review: How to give a science flash talk at SciDev.Net | NONE | Flash talk presentations |
| Date  | May 7  | STUDENT FLASH TALKS | Forum posts and online discussions | NONE | Flash talk presentations |
Assigned Readings List:

LECTURE 1
Textbook: Chapters 1 (pages 1-21) and Chapter 2 (pages 31-54).
Required articles:

LECTURE 2
Textbook: None
Required articles:

LECTURE 3
Textbook: None
Required Readings/Review: To learn more about available Globocan 2018 data and visualization tools for exploring cancer statistics worldwide, please visit:
https://gco.iarc.fr/today/home

To learn more about available cancer statistics among the US population, please visit:
https://statecancerprofiles.cancer.gov/

LECTURE 4
Textbook: None
Required Readings/Review: To learn more about Cancer Epidemiology Services and the New Jersey State Cancer Registry, please visit: http://www.state.nj.us/health/ces/index.shtml

To learn more about the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) Program, respectively, please visit: http://seer.cancer.gov

LECTURE 5
Textbook: Read overview, clinical synopsis, descriptive epidemiology, and genetic and molecular epidemiology sections and review major risk factors for each assigned chapter/site-specific cancer: oral and pharyngeal cancer (Chapter 7, Pages 137-143), esophageal cancer (Chapter 9, Pages 184-191), stomach cancer (Chapter 10, Pages 213-222), colorectal cancer (Chapter 11, Pages 243-261), liver cancer (Chapter 12, Pages 277-294), pancreatic cancer (Chapter 13, Pages 309-320), lung cancer (Chapter 14, Pages 327-342), skin cancer (Chapter 15, Pages 355-370 – focus on melanoma), breast cancer (Chapter 16, Pages 381-406), cervical cancer (Chapter 17, Pages 421-434), endometrial cancer (Chapter 18, Pages 441-452), and ovarian cancer (Chapter 19, Pages 459-471).
Required articles: None
LECTURE 6

Textbook: Read overview, clinical synopsis, descriptive epidemiology, and genetic and molecular epidemiology sections and review major risk factors for each assigned chapter/site-specific cancer: prostate cancer (Chapter 20, Pages 481-506), bladder cancer (Chapter 22, Pages 543-561), kidney cancer (Chapter 23, Pages 571-580), brain cancer (Chapter 24, Pages 587-599), thyroid cancer (Chapter 25, Pages 609-622), Non-Hodgkin lymphoma (Chapter 27, Pages 649-664), and leukemias (Chapter 28, Pages 673-683).

Required articles: None

LECTURE 7

Required Readings/Review: Review all assigned readings and class notes in preparation for the in-class Jeopardy game!

LECTURE 8

Required Readings/Review: Review all assigned readings and class notes in preparation for the in-class course exam!

LECTURE 9


LECTURE 10


LECTURE 11


LECTURE 12


LECTURE 13

LECTURE 14
Textbook: None
Required articles: None

LECTURE 15
Textbook: None
Required articles: None

Learning Management System: Canvas will be used extensively throughout the semester for course syllabus, assignments, announcements, communication and/or other course-related activities. It is the student’s responsibility to familiarize themselves with Canvas and check it regularly. If you have difficulties accessing Canvas, please inform the instructor and Canvas Support (help@canvas.rutgers.edu). Canvas is accessible at canvas.rutgers.edu.

School of Public Health Honor Code: The School of Public Health Honor Code is found in the School Catalog (sph.rutgers.edu/academics/catalog.html). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another’s work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the School community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Students with Disabilities: Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student must apply for Services by first completing a Registration Form with the Rutgers Office of Disability Services (ODS) at ods.rutgers.edu. The student will also be required to participate in an ODS intake interview and provide documentation. If reasonable accommodations are granted, ODS will provide you with a Letter of Accommodations which should be shared with your instructors as early in your courses as possible.

Commitment to Safe Learning Environment: The Rutgers School of Public Health is committed to helping create a safe learning environment for all students and for the School as a whole. Free expression in an academic community is essential to the mission of providing the highest caliber of education possible. The School encourages civil discourse, reasoned thought, sustained discussion, and constructive engagement. Provocative ideas respectfully presented are an expected result. An enlightened academic community, however, connects freedom with responsibility. The School encourages all students to disclose any situations where you may feel unsafe, discriminated against, or harassed. Harassment or discrimination of any kind will be not tolerated and violations may lead to disciplinary actions.
Reporting Discrimination or Harassment: If you experience any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. You may report such incidents to the RBHS Title IX Office or to the School of Public Health’s Office of Student Affairs. Rutgers University has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. If you experience any other form of discrimination or harassment, including racial, ethnic, religious, political, or academic, please report any such incidents to the School’s Office of Student Affairs. The School strongly encourages all students to report any incidents of discrimination or harassment to the School. Please be aware that all Rutgers employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers as listed in Appendix A to Policy 10.3.12) are required to report information about such discrimination and harassment to the School and potentially the University. For example, if you tell a faculty or staff member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty or staff member must share that information with the RBHS Title IX Coordinator. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can find a list of resources in Appendix A to University Policy 10.3.12. For more information about your options at Rutgers, please visit Rutgers Violence Prevention and Victim Assistance.

Graduate Student Computer Policy: Students are required to possess a personal laptop, no older than approximately two years, that must meet minimum requirements which may be found online at: sph.rutgers.edu/student-life/computer-support.html

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems: When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.

Policy Concerning Use of Turnitin: Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com (directly or via learning management system, i.e. Canvas) for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site. Students who do not agree should contact the course instructor immediately.

Withdrawal/Refund Schedule: Students who stop attending their course(s) without submitting a completed Add/Drop Course form will receive a failing grade. Furthermore, students dropping to zero credits for the semester are considered withdrawn and must submit a completed Leave of Absence form from the School of Public Health’s Office of Student Affairs. The School of Public Health refunds tuition only. Administrative and technology fees are non-refundable. You may find the Withdrawal/Refund Schedule on the School of Public Health website at: sph.rutgers.edu/academics/academic-calendar.html