



GLHLTH 641K

## Non-communicable Diseases in Low- and Middle-Income Countries: Trends, Causes, and Prevention Strategies

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Dates / contact hours: seven week session, 300 minutes per week contact time

Academic Credit: 3-credit course

Tags for the Duke Undergraduate System:

Areas of Knowledge: recommended NS, SS (Natural Sciences, Social Sciences)

Modes of Inquiry: recommended STS (science technology)

This course is designed for the Master of Science in Global Health (DKU) but is also open to advanced undergraduate students.

### Instructor's Information and Office Hour

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Office hours (by appointments): Wednesday 8-10am and 5-7pm

Room 1057 in the Conference Center

### Prerequisite(s), if applicable

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None.

### Course Description

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Global health attention has historically been focused on acute and infectious diseases. With economic development and shifts in population, environments, and lifestyles, infections and diseases of under-nutrition no longer account for most of the disease burden in high-income countries. The same patterns are starting to emerge in many low- and middle-income countries (LMICs), at a much faster rate, however, than ever seen before in history. This course provides a global overview of the recent trends in non-communicable disease (NCD) epidemiology and strategies for prevention and control of these diseases with a particular emphasis on China and comparisons between China and other countries.

The course focuses on four major NCD categories as separate modules: cardiovascular, diabetic, oncologic, and pulmonary diseases. Case studies are used to highlight selected geographic differences.

Regional differences within China will be considered, in addition to the comparison of China to other countries. By using lectures, videos, assigned readings, and classroom discussions as well as various assignments, the course aims to provide the students with a firm understanding of the shifting disease burden, stakeholders, and interventions to address NCDs in LMICs.

### Course Goals / Objectives

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At the end of the course, each student will be able to:

1. Define and articulate the concept of NCDs in the context of global public health.
2. Compare and contrast trends among regions of China as well as between China and other countries.
3. Describe recent trends in NCD epidemiology with special attention to differences between high-income and LMICs.
4. Analyze and articulate the upstream determinants and burden of NCDs in economic, social, environmental and/or political terms.
5. Identify key risk factors and stakeholders in NCD prevention and management, and review various strategies to address non-communicable diseases by these stakeholders.
6. Apply the above objectives to the case of cardiovascular, diabetic, oncologic, and pulmonary diseases.

*In this course – an adventurous journey we embark on **together**, I hope that we (re)-discover the real, large, and rising threat of NCDs to personal, national, and global health; (re)-ignite the passion to do something about it; and to cultivate learning, critical thinking, creative skills that will enable us to do so.*

### Required Text(s)/Resources

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No required textbook. Required readings (mostly in electronic formats) will be provided by the instructor or available through Duke on-line library resources and the course Sakai site.

### Recommended Text(s)/Resources

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Stuckler D and Siegel K (eds.). Sick societies: Responding to the global challenge of chronic disease. Oxford University Press. 2011.

A limited number of relevant books will be available in the DKU library. The library website also contains a course page for online resources.

### Course Requirements / Key Assignments

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Grading for this course is based on four requirements with differentiation for undergraduate and graduate students when appropriate.

Participation and attendance (25%): Students will be expected to participate in class discussions. This participation may be in the form of question and answers, open discussions, role-playing, mock debates, or sharing of class summaries or opinions. Students should come to class having read the assigned materials so that they are well prepared to participate. Particular attention will be paid to any difficulties the EFL students may have with oral communication in English or with the US-style of classroom discussions. The instructor will also communicate with the DKU professors who will be teaching the writing and oral communications classes and helping students through the DKU Writing Studio. The instructor will clearly explain the expectations for classroom engagement during the first class meeting and will provide feedback to the students on subsequent class meetings. In lieu of one class session, the students have the opportunity to go on three field trips (co-organized with other courses) with at least one field trip being required. Grading for this part will be based on attendance (1 point for each of the 13 sessions and at least one field trip – present and not distracted, total 14 points) and participation (rating based on level of engagement and relevance of comments, total 11 points).

Student teaching (10%): Each student will choose or be assigned a session in the syllabus to present the main content of one key reading to the whole class as a basis for further discussion. The presentation will be 10 minutes long. Graduate students are expected to include other relevant materials in this presentation beyond the one reading and can make the presentation up to 15 minutes long. Each presentation will be graded using the following five categories:

- *Organization (15%)* – Assessment of physical organization (Does the presentation flow? Is it coordinated, matched with visual aids? Does it keep on time?)
- *Content (40%)* – Assessment of whether contents are relevant and scientifically presented? Does it pose meaningful questions on population health improvements?
- *Clarity (15%)* – Assessment of whether the presentation is understandable with appropriate language?
- *Use of audio visual materials (10%)* – Assessment of suitability of the audiovisual media used; are visual aids addressed, used well?
- *Overall quality of the presentation (20%)* – It would look for good language, style, structure, use of tone and volume, impact of the message and overall standard of the presentation.

Academic Debates (15%): Students will form two groups with each group divided into the affirmative vs. the negative party. Each group will choose or be assigned a controversial topic related to NCD prevention and control. Each party in the group will prepare for the debate ahead of time and engage in an hour-long Lincoln-Douglas style debate later in the course (to be explained during the first session). Each party will receive a group rating (10 points) and an individual rating (5 points).

Course Project (50%): Each student will be required to finish a course project pertaining to a significant issue relevant to NCDs. This project will focus on a pre-agreed “concept” that must be approved by the instructor first. Students will draw on the course materials, internet resources and reference materials. Though not compulsory, students will be encouraged to show their drafts to the instructor. The project will be due four days after the last session.

For graduate students, the project should be an academic paper (1,500-2,500 words, not including references) with clearly identified research questions, methods, results (ideally from analyses of actual data), and discussion. Two large Chinese databases will be introduced in the first session. A systematic review is also acceptable for graduate students.

Undergraduate students can choose to work on an academic paper like the graduate students. The project (1000-2000 words, not including references) can also take on a number of different formats. Multi-media components (eg. photos, videos, graphs, and posters) are welcome. With prior approval from the instructor, the final product can also be in non-traditional formats such as video essays. Some examples include:

- A short paper focusing on the burden of a chronic disease (or NCDs in general) in a country of a student's choosing (or a province/region in China). Numerical indicators (e.g., prevalence or incidence rates of disease or causes of death) should be used to make or refute the case that NCDs are a health issue for that country. The paper will also describe the prevention or control strategies for NCDs in the same country and for the same category of disease and discuss specific challenges thereof. Suggestions for implementation strategies and/or avenues of research should also be included.
- A report presenting to an international audience seeking to invest in a specific NCD effort (e.g., diagnosing, treatment, education, research, etc.). Present the case for one country/disease category and offer a small list of projects/programs that would significantly impact non-communicable diseases in their country.
- A case study of a real (or fictional) patient with a particular chronic disease. Describe what it means to have such a disease in terms of their quality of life, health, finance, and family life. Include the healthcare they are getting and evaluate the accessibility, affordability, and quality of care. Discuss ways to improve the care, health and quality of life of the patients from a policy and environmental, healthcare system, community, and personal perspective.
- How an innovative low-cost technology can transform the prevention or control of NCDs in LMICs?
- A business case for investing in a certain kind of NCD prevention or management program.
- Focusing on a particular risk factor: prevalence, trend, causes, consequences, ways to reduce risk.
- Evaluating an intervention or initiative, eg. work-place wellness program.
- Students are welcome to work on the topic of their debate or student teaching presentation for this project.

Students will be encouraged to take advantage of the DKU Writing Studio and/or the Duke Writing Studio (<http://twp.duke.edu/writing-studio/resources>).

Participation in the NCD online platforms (5%): Collaboration and networking with professionals from various backgrounds, disciplines and nationalities is an important aspect of global health. There are 2 online networks composed of young (in age or at heart) professionals from across the globe who are passionate about the epidemic of non-communicable diseases around the globe. To earn an extra five points to a student's grade, students should join one of two or other suitable online groups and

participate substantively in the online network: [ghdonline.org](http://ghdonline.org) or [ypchronic.org](http://ypchronic.org) membership is free. Substantive contributions should be  $\geq 4$  de novo postings or replies over the course of the semester. “Substantive” relates more to content than length of a posting. A general guide is to write something long enough so that it has meaning but short enough so that people actually read it.

### Technology Considerations, if applicable

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Students should have laptop computers. Students will need internet access for library resources and for the course Sakai site.

### Assessment Information / Grading Procedures

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The **grading scale** for the course is as follows:

A+	98-100	C+	77-79
A	93-97	C	76-73
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
		F	$\leq 59$

### Diversity and Intercultural Learning (see Principles of DKU Liberal Arts Education)

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Readings and cases will be drawn from thinkers and situations spanning the globe. Attention in readings and class time will be devoted to the challenges and principles of creating a productive learning environment for all participants. Grades for the students’ assignments and classroom participation will reflect their effort and ability to work successfully in an intercultural setting. Guidance on group work and class participation will be provided for students not accustomed to open discussion style of pedagogy.

### Course Policies and Guidelines

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- Community Standards: Students are expected to abide by the DKU community standards of **respect, excellence, and integrity**, which are based on the Duke University standards

(<http://studentaffairs.duke.edu/conduct/about-us/duke-community-standard>) at all times. If a questionable circumstance arises, please seek the instructor's guidance sooner rather than later.

- Attendance: Students are expected to attend each class session unless they have a legitimate excuse for missing a class. If possible, students should let the instructor know about missing classes ahead of time. Attendance will be taken at the beginning of class. Any unexcused absence from class will factor into the final Participation and Attendance grading. It is the student's responsibility to be familiar with the topics and material from any missed class.
- Assignment due dates: Written assignments will be due by 5pm on the due date. Assigned work that is turned in late on the due date will be penalized 5% of the total grade for that assignment. Work that is turned in after the due date will be penalized 10% of the total grade points per day that it is late. Emailing assignments is preferable. The email date and time stamp will be used to judge if the assignment has been turned in on time.
- Electronic devices in the classroom: Telephones, pagers, and other communication devices are to be turned off or silenced and are not to be visible during class. Sending or receiving electronic communication of any type (e.g., SMS, email, voicemail) is not allowed including passively monitoring communication. When in class, you are expected to be engaged in the class session. Therefore, use of laptops, tablets and other computers for purposes other than providing a digital copy of the assigned reading material or taking notes is generally disallowed.
- Email communication: Discussion of issues and topics covered in the course should be reserved for class time or office hours as much as possible. Email communication will not be used as a substitute in this regard. The instructor will not review via email any material or lectures that a student might have missed. The instructor will strive to answer appropriate email messages in a timely and thorough manner. Email messages should include an appropriate salutation and closing and should follow spelling, usage, and grammar rules.

### Course Outline and Reading List by Week and Session

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Read each article/chapter before the start of class on the dates listed below. Additional readings will be assigned throughout the semester. The determination of a rigorous yet manageable reading load will be made according to consultation with other DKU professors and feedback from the students, as well as the standards of a Duke University course of this level.

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