Syllabus - CPH 911 Epidemiology Seminar I

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UNIVERSITY OF KENTUCKY
COLLEGE OF PUBLIC HEALTH

Subject to change--- 8/30/2012

Course Syllabus
CPH 911: Epidemiology Seminar I
Fall, 2012

CPH Building Room 202; Tuesdays 3:00-5:30 pm

Contact information

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Cell: 859 797 2579

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Office Hours: by appointment (or any time my door is open- most mornings)

E-Mail contact is ALWAYS preferred—You can also Text me on my cell phone (859 797 2579) in an emergency!
**Course description**

CPH 911 covers a variety of advanced topics in Epidemiology. We will be focusing on the advanced competencies, as listed below, that are expected in mid-level epidemiologists working at state or federal agencies. A large portion of the course will be devoted to looking at practical applications of epidemiology—i.e. much of what we read in the news looks at data from epidemiologic studies. We will be spending time looking in more depth at these reports and the epidemiologic strengths and weaknesses of the supportive studies.

**Course prerequisites**

MPH with prior coursework in epidemiology and biostatistics or by special consent of instructor.

**Course objectives**

This course will critically address the competencies expected of an epidemiologist functioning at a doctorate or supervisory level.

**Epidemiology Competencies (Expected at MPH level)**

1. Recognize the importance of epidemiology for informing scientific, ethical, economic, and political discussion of health issues
2. Describe a public health problem in terms of magnitude, person, time, and place
3. Utilize the basic terminology and definitions of epidemiology
4. Identify key sources of data for epidemiologic purposes
5. Calculate basic epidemiologic measures
6. Evaluate the strengths and limitations of epidemiologic reports
7. Draw appropriate inferences from epidemiologic data
8. Communicate epidemiologic information to lay and professional audiences
9. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use, dissemination of epidemiologic data
10. Understand the principles and limitations of public health screening programs

Cross-Cutting Competencies:

1. Interact appropriately and sensitively with persons from diverse backgrounds including but not limited to diversity of culture, age, gender, education, race, ethnicity, lifestyle, profession, and socioeconomic status
2. Understand the need for lifelong learning to remain a master of public health

**Epidemiology Competencies (Expected at Doctorate level Tier 3)**
Competencies for Applied Epidemiologists in Governmental Public Health Agencies Tier 3a: Senior-Level Epidemiologist: Supervisor and/or Manager

Example of Functional Responsibility
Supervisor, manager, and/or director of a major section, program, or bureau in a public health agency.

Examples of Educational and Experiential Criteria
Master’s degree with a focus in epidemiology with 4 or more years’ work experience in epidemiology in a public health agency; or
Doctoral-level epidemiologist with at least 2 years’ work experience at a Tier 2 epidemiologist level; or
Other nonepidemiology professional degree or certification (e.g., RN, MD/DO, DDS/DMD, DVM, PhD, RS) with specific epidemiology training (e.g., MPH degree, CDC Epidemic Intelligence Service program) and at least 4 years’ work experience at a Tier 2 epidemiologist level.

Competencies and Subcompetencies for Skill Domain 1—Assessment and Analysis
• Ensure identification of public health problems pertinent to the population
  o Ensure that critical thinking is used to determine whether a public health problem exists
  o Decide whether to conduct further investigation or other public health action on the basis of results of literature review and assessment of current data
  o Lead collaborations with others inside and outside the agency to identify the problem and form recommendations
• Oversee surveillance activities
  o Approve surveillance for the particular public health issue under consideration
  o Decide on surveillance data needs
  o Supervise or manage implementation of new or revision of existing surveillance systems
  o Synthesize key findings from the surveillance system and other pertinent information for use by decision-makers
  o Ensure evaluation of surveillance systems
• Ensure investigation of acute and chronic conditions or other adverse outcomes in the population
  o Oversee a community health status assessment
  o Decide on priority of public health problems to be addressed
  o Approve selection of investigative processes
  o Verify hypotheses
  o Oversee design of investigations (e.g., disease investigations, studies, or screening programs)
  o Ensure use of investigation techniques consistent with the public health problem
• Ensure study design and data collection, dissemination, and use follow ethical/legal principles
  o Examine ethics guidelines and principles when planning studies; conducting research; and collecting, disseminating, and using data
  o Communicate to staff legal expectations, limitations, and implications of collection, management, dissemination, and use of data and information
  o Obtain decision on whether investigation involves public health practice or public health research
  o Ensure legal and ethical conduct of human subjects research
o Ensure application of necessary Institutional Review Board processes
o Ensure that conflicts of interest do not interfere with research or investigations
o Ensure application of privacy laws to protect confidentiality, including Health Insurance
Portability and Accountability Act and applicable state and local privacy laws
o Know agency procedures for handling Freedom of Information Act requests
o Ensure application of ethical principles in preparing and submitting publications
• Ensure management of data from surveillance, investigations, or other sources
  o Approve database requirements
  o Ensure database management
• Evaluate analysis of data from an epidemiologic investigation or study
  o Approve analysis plan for data
  o Approve data analysis
• Evaluate conclusions and interpretations from investigation
  o Assess the validity of the epidemiologic data, taking into consideration bias and other study
  limitations
  o Assess need for special analyses, including survival analyses, cost-effectiveness/cost
  benefit/cost utility analyses
  o Validate key findings from the study
• Determine evidence-based interventions and control measures in response to
  epidemiologic findings
  o Approve interventions on the basis of understanding of cultural/social/political framework for
  consideration
  o Ensure that scientific evidence is used in preparing recommendations for action or
  interventions
• Ensure evaluation of programs
  o Approve measurable and program-relevant goals and objectives
  o Decide on program logic models and theories of action
  o Approve surveillance and other data for use in tracking program objectives and outcomes
  o Monitor progress toward program objectives and outcomes
  o Incorporate information about progress toward program objectives and outcomes in decisions
  on program planning and modification

Competencies for Skill Domain 2—Basic Public Health Sciences
  Use current knowledge of causes of disease to guide epidemiologic practice
  Ensure the use of laboratory resources to support epidemiologic activities
  Ensure application of principles of informatics, including data collection, processing, and
  analysis, in support of epidemiologic practice
  Develop and manage information systems to improve effectiveness of surveillance,
  investigation, and other epidemiologic practices

Competencies for Skill Domain 3—Communication
  Ensure preparation of written and oral reports and presentations that communicate
  necessary information to professional audiences, policy makers, and the general public
  Ensure that the basic principles of risk communication are followed in all communication
  of epidemiologic findings
  Model interpersonal skills in communication with agency personnel, colleagues, and the
  public
  Ensure utilization of effective communication technologies
**Competencies for Skill Domain 4—Community Dimensions of Practice**
- Lead epidemiologic studies, public health programs, and community public health planning processes at the state, local, or tribal level
- Develop community partnerships to support epidemiologic investigations

**Competencies for Skill Domain 5—Cultural Competency**
- Differentiate special populations by race; ethnicity; culture; societal, educational, and professional backgrounds; age; gender; religion; disability; and sexual orientation
- Establish relationships with groups of special concern (e.g., disadvantaged or minority groups, groups subject to health disparities, historically underrepresented groups)
- Ensure that surveillance systems are designed to include groups subject to health disparities or other potentially underrepresented groups (using standard categories where available)
  - Ensure that investigations use languages and approaches tailored to population
  - Ensure that standard population categories or subcategories are used for data analysis
  - Use knowledge of specific sociocultural factors in the population to interpret findings
  - Ensure that actions are relevant to the affected community

**Competencies for Skill Domain 6—Financial and Operational Planning and Management** *(Operational Planning, Financial Planning, and Management Skills)*
- Create operational and financial plans for future epidemiologic activities
- Formulate a fiscally sound budget that will support the activities defined in the operational plan and is consistent with the financial rules of the agency
- Oversee implementation of operational and financial plans
- Develop requests for proposals for extramural funding to support additional epidemiologic activities and special projects
- Use management skills
  - Promote collaborations, strong partnerships, and team building to accomplish epidemiology program objectives

**Competencies for Skill Domain 7—Leadership and Systems Thinking**
- Promote the epidemiologic perspective in the agency strategic planning process
- Lead the creation of epidemiology program’s vision in the context of the agency’s plan
- Use performance measures to evaluate and improve epidemiology program effectiveness
- Promote ethical conduct in epidemiologic practice
- Ensure professional development of epidemiology workforce
- Lead epidemiology unit in preparing for emergency response

**Competencies for Skill Domain 8—Policy Development**
- Bring epidemiologic perspective in the development and analysis of public health policies

**Expectation of Competency Attainment**

By the conclusion of the course, it is expected that students should be aware of all of the competencies noted above and knowledgeable of the following ones:
College of Public Health Objectives in Epidemiology

This course is a key component of the educational program goals for the Dr.P.H. which is described in the most current student handbooks. Please reference the educational program goals throughout the semester, as they will provide a framework for this course and will contribute to your preparation for successfully completing other degree program requirements.

Course Structure:

The course will consist of seminar/discussion classes, lectures, web based learning, and self-study. The course will be enhanced by an online component in Blackboard, which will provide resources for accessing class materials including assignments and readings.

Course Materials:

The syllabus and any course other course materials (including assignments) will be posted on blackboard. The syllabus is subject to change based on the discussions that occur in the first week of class.

Textbooks

Required – None other than what you have in your collection

You may have other basic Epidemiology texts in your library.

Mine includes:

* *Epidemiology for Public Health Practice*, by Friis and Sellers.

*Clinical Epidemiology*, by Fletcher and Fletcher

I will post online:
Principles of Epidemiology (CDC text)

Basic Epidemiology (WHO Text)

**Course requirements and learner evaluation**
Letter grades for the course will be assigned on a percentage basis (given below) for the total score as a percentage of the total number of points possible for the course.

- 100-90 = A – 900 - 1000 points
- 89-80 = B – 800 - 899 points
- 79-70 = C – 700 - 799 points
- 0-70 = E (Fail) - <700 points

Your grade for this course will consist of:

**Blackboard Participation- Epidemiology in the News – 160 points (16%)**

Through the semester, each student will be posting 4 “Epidemiology in the news” stories. The thought here is to find a story in the media that has an epidemiologic perspective to it - then post that story (and any supporting data) online - such that the rest of us can discuss the topic at the next class! Each posting will be worth up to 40 points. This should be posted on the discussion board and other students can comment on the posting!

The rotation for these assignments will be noted below!

**Blackboard Participation - Competencies 240 points (24%)**

Blackboard participation accounts for 24% of your final grade. Blackboard will utilize class readings in the form of discussion questions from the weekly topics, or chapter review. Assignments on Blackboard are expected to be completed by the Monday night (midnight) before each Tuesday Class! Partial credit may be given for late submissions.

Blackboard 9 is a comprehensive and flexible e-learning software platform that delivers course management for online learning at the University of Kentucky. The system can be accessed through the link blue portal.

This will be worth up to 20 points per Blackboard posting.

Cutting and pasting from websites into Blackboard in response to questions is not acceptable and will result in loss of points!

**In Class Presentations 600 points (60%)**

Students will be doing 6 in class presentations during the class. These will each deal with a separate study design:
- Descriptive or Ecologic study
Case-Control Study
Cohort Study
Randomized Clinical Trial

The first assignment will be to generate two graphics using Gapminder (www.gapminder.org) on topics of your choosing. The final assignment will be to look at any topic of your choosing with two studies of any design- one of which is very good and the other of which is very bad.

For each of these designs, the students will select and present a published study and discuss it in depth. Topics to be covered (as appropriate) include:
- Case definition(s)
- Outcome variables
- Key predictive variables
- Study findings
- Study Limitations
- Ways of improving study

Each presentation is worth up to 100 points.

A rotation for student presentations will be posted on the “Assignment” section. The responses to these assignments should be done in the same location on Blackboard.

**Instructor expectations**

1. I expect you to attend class. The components are highly interrelated; missing a class will detract from the learning potential of subsequent sessions.
2. I expect you to be in the classroom and prepared to begin work at the scheduled starting time for each session.
3. I expect (and encourage) you to provide honest and timely feedback regarding the content and process of this course throughout the semester.
4. I expect you during the semester to interactively engage via Blackboard with the other students and the instructor.
5. I expect you to share in the responsibility for making this course an enjoyable and beneficial learning experience.
6. Wikipedia cannot be used as a cited reference as noted by a co-founder of Wikipedia! You may use Wikipedia to identify appropriate source material. Remember Wikipedia is not peer reviewed!

**Make up work**

When there is an excused absence, students will be given the opportunity to make up missed work and/or exams. It is the student's responsibility to inform the instructor of the absence preferably in advance, but no later than one week after it.

**Academic honesty**
Academic honesty is highly valued at the University. You must always submit work that represents your original words or ideas. If any words or ideas used in a class assignment submission do not represent your original words or ideas, you must cite all relevant sources and make clear the extent to which such sources were used. Words or ideas that require citation include, but are not limited to, all hard copy or electronic publications, whether copyrighted or not, and all verbal or visual communication when the content of such communication clearly originates from an identifiable sources. Please see the University’s policies concerning the consequences for plagiarism.

**Accommodations**

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, submit to me a Letter of Accommodation from the Disability Resource Center (www.uky.edu/TLC/grants/uk_ed/services/drc.html). If you have not already done so, please register with the Disability Resource Center for coordination of campus disability services available to students with disabilities.

**Inclement weather**

The University of Kentucky has a detailed policy for decisions to close in inclement weather. The snow policy is described in detail at http://www.uky.edu/MicroLabs/documents/p-weather.pdf or you can call (859) 257-5684.

**Texting/Computers/SmartPhones in Class**

I have decided to not ban Smart phones/Computers in class as in the past students access their assignments and look up information in class, which enhances the experience. Please do NOT abuse this! If students start texting in class – I will deduct class participation points and ban electronics!
# Course schedule and topics

<table>
<thead>
<tr>
<th>Week</th>
<th>Month</th>
<th>Date</th>
<th>Topic</th>
<th>Time</th>
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<tr>
<td>1</td>
<td>August</td>
<td>28</td>
<td>Overview of Syllabus/Course</td>
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<td>prior publications, capstone ideas, etc.</td>
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<td>Paper Topics</td>
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<td>In Class Presentations</td>
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<td>What is your 5 or 10 year plan?</td>
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<td>Research interests? Prior/future capstones/dissertations?</td>
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<td>3</td>
<td>September</td>
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<td>Competency Discussion</td>
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<td>- <strong>Ensure identification of public health problems pertinent to the</strong></td>
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<td>How does one go about identifying pertinent public health problems?</td>
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<td>What resources are available?</td>
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<td>Why are collaborations important? How can the help (or hinder) your</td>
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<td>Amirah</td>
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</table>
| 4    | September | 18 | **Oversee surveillance activities**  
  - Approve surveillance for the particular public health issue under consideration  
  - Decide on surveillance data needs  
  - Supervise or manage implementation of new or revision of existing surveillance systems  
  - Synthesize key findings from the surveillance system and other pertinent information for use by decision-makers  
  - Ensure evaluation of surveillance systems  
  The questions for this week are:  
  - How do you go about designing a surveillance system for a public health issue?  
  - Give a specific example—picking either a cluster, an acute condition, or a chronic condition (and spend some time on this!)  
  - What steps would then take to implement this system?  
  - How does one then take these findings and use them to influence decision makers?  |
| 5    | September | 25 | **Competency Discussion**  
  **Ensure investigation of acute and chronic conditions or other adverse outcomes in the population**  
  - Oversee a community health status assessment  
  - Decide on priority of public health problems to be addressed  
  - Approve selection of investigative processes  
  - Verify hypotheses  
  - Oversee design of investigations (e.g., disease investigations, studies, or screening programs)  
  - Ensure use of investigation techniques consistent with the public health problem  
  Now we will look at "events" in communities (food poisoning, chlorine gas leak, etc).  
  Define an event that would need an investigation!  
  - What is the question you are trying to address regarding this event?  
  - How would you design a study to answer this question?  
  - What factors do you need to consider in doing community-based research?  |
| 6    | October  | 2  | **Competency Discussion**  
  **Ensure study design and data collection, dissemination, and use follow ethical/legal principles**  
  - Examine ethics guidelines and principles when planning studies; conducting research; and collecting, disseminating, and using data  
  - Communicate to staff legal expectations, limitations, and implications of collection, management, dissemination, and use of data and information  
  - Obtain decision on whether investigation involves public health practice or public health research  
  - Ensure legal and ethical conduct of human subjects research  
  - Ensure application of necessary Institutional Review Board processes  
  - Ensure that conflicts of interest do not interfere with research or investigations  
  - Ensure application of privacy laws to protect confidentiality, including Health Insurance Portability  |
and Accountability Act and applicable state and local privacy laws  
- Know agency procedures for handling Freedom of Information Act requests  
- Ensure application of ethical principles in preparing and submitting publications  

<table>
<thead>
<tr>
<th>When is IRB approval not needed in investigations?</th>
<th>When is IRB approval needed in investigations?</th>
<th>What steps are (generally) needed to protect privacy in investigations?</th>
</tr>
</thead>
</table>

| 7 | October | 9 | Competency Discussion  
• Ensure management of data from surveillance, investigations, or other sources  
  o Approve database requirements  
  o Ensure database management  
• Evaluate analysis of data from an epidemiologic investigation or study  
  o Approve analysis plan for data  
  o Approve data analysis  
Some in this class are true experts in this arena!  
What are the steps/tasks to ensure accurate databases? (I really want to see your insights here-- this is VERY important)  
What are the processes in evaluating a "Data Analysis"? |
| 8 | October | 16 | • Evaluate conclusions and interpretations from investigation  
  o Assess the validity of the epidemiologic data, taking into consideration bias and other study limitations  
  o Assess need for special analyses, including survival analyses, cost-effectiveness/cost benefit/cost utility analyses  
  o Validate key findings from the study  
OK- This is where things can get interesting! How does one know whether the findings from your study are real?  
When do they need to be "validated"  
When do you need to do additional analyses? |
| 9 | October | 23 | NO Class |

Assignment 3 - Zila, Jaclyn  
Epi in the news - Amirah  

Assignment 4 - Amirah, Ishwor  
Epi in the news - Ishwor  

Epi in the News - Amirah, Ishwor, Zila, Jaclyn
<table>
<thead>
<tr>
<th>Date</th>
<th>Month</th>
<th>Day</th>
<th>Content</th>
<th>Assignment</th>
<th>Epi in the news</th>
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<tbody>
<tr>
<td>10</td>
<td>October</td>
<td>30</td>
<td><strong>Determine evidence-based interventions and control measures in response to epidemiologic findings</strong>&lt;br /&gt;&lt;br /&gt;- Approve interventions on the basis of understanding of cultural/social/political framework for consideration&lt;br /&gt;- Ensure that scientific evidence is used in preparing recommendations for action or interventions&lt;br /&gt;&lt;br /&gt;This is where things come full circle! How does one use epidemiologic findings to best target interventions? How do you deal with uncertainty?</td>
<td>Assignment 4 - Zila, Jaclyn</td>
<td>Zila</td>
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<td>11</td>
<td>November</td>
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<td><strong>Ensure evaluation of programs</strong>&lt;br /&gt;&lt;br /&gt;- Approve measurable and program-relevant goals and objectives&lt;br /&gt;- Decide on program logic models and theories of action&lt;br /&gt;- Approve surveillance and other data for use in tracking program objectives and outcomes&lt;br /&gt;- Monitor progress toward program objectives and outcomes&lt;br /&gt;- Incorporate information about progress toward program objectives and outcomes in decisions on program planning and modification&lt;br /&gt;&lt;br /&gt;I'd like everyone to develop and post a logic model for a problem of your choosing! Discuss the various components of evaluation programs (process, outcome, etc.) Discuss the relation between Surveillance and program evaluation!</td>
<td>Assignment 5 - Amirah, Ishwor</td>
<td>Jackyn</td>
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<td>12</td>
<td>November</td>
<td>13</td>
<td><strong>Competencies for Skill Domain 2—Basic Public Health Sciences</strong>&lt;br /&gt;&lt;br /&gt;Use current knowledge of causes of disease to guide epidemiologic practice&lt;br /&gt;- Ensure the use of laboratory resources to support epidemiologic activities&lt;br /&gt;- Ensure application of principles of informatics, including data collection, processing, and analysis, in support of epidemiologic practice&lt;br /&gt;- Develop and manage information systems to improve effectiveness of surveillance, investigation, and other epidemiologic practices&lt;br /&gt;&lt;br /&gt;Give some examples of how knowledge of disease can guide epidemiologic practice.&lt;br /&gt;How can laboratory data support epidemiologic activities- give some examples.&lt;br /&gt;Give some concrete examples of how good informatic principles can support epidemiologic practice.</td>
<td>Assignment 5 - Zila, Jaclyn</td>
<td>Amirah</td>
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<td>13</td>
<td>November</td>
<td>20</td>
<td><strong>Competencies for Skill Domain 3—Communication</strong>&lt;br /&gt;&lt;br /&gt;Ensure preparation of written and oral reports and presentations that</td>
<td>Assignment 6 - Amirah, Ishwor, Zila, Jaclyn</td>
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communicate necessary information to professional audiences, policy makers, and the general public

Ensure that the basic principles of risk communication are followed in all communication of epidemiologic findings

Model interpersonal skills in communication with agency personnel, colleagues, and the public

Ensure utilization of effective communication technologies

Review the attached document "Manuscript tips"

Discuss how you go about preparing and submitting a paper (or how you would do this if you have not done yet!)

<table>
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<td>Competencies for Skill Domain 5—Cultural Competency</td>
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- Differentiate special populations by race; ethnicity; culture; societal, educational, and professional backgrounds; age; gender; religion; disability; and sexual orientation
- Establish relationships with groups of special concern (e.g., disadvantaged or minority groups, groups subject to health disparities, historically underrepresented groups)
- Ensure that surveillance systems are designed to include groups subject to health disparities or other potentially underrepresented groups (using standard categories where available)
- Ensure that investigations use languages and approaches tailored to population
- Ensure that standard population categories or subcategories are used for data analysis
- Use knowledge of specific sociocultural factors in the population to interpret findings
- Ensure that actions are relevant to the affected community

Why do you think cultural competency is important in epidemiology?
What are some of the barriers to cultural competencies, and how can these be overcome?

Assignment 6 - Amirah, Ishwor, Zila, Jaclyn

Epi in the news - Zila
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