Mortality and Health
DEMOGRAPHY 230

TIME: Tuesday and Thursday, 3:30 – 5 p.m.
LOCATION: Department of Demography, 2232 Piedmont, Rm. 100
PROFESSOR: John R. Wilmoth
OFFICE HOURS: Wednesday, 3-5 p.m., 2232 Piedmont, Rm. 204
TELEPHONE: 642-9688
EMAIL: jrw@demog.berkeley.edu
WEBSITE: http://demog.berkeley.edu/~jrw/Dem230
READER: Copies of all reading materials are held on reserve in the Demography library (3rd floor, 2232 Piedmont Avenue). Please do not remove the reserve copies from the library except for photocopying.

DESCRIPTION: This course will examine patterns of mortality and health in human populations, as well as methods for analyzing and understanding those patterns. In order to limit the scope of the course, we will focus primarily on patterns of adult and old-age mortality and health, and on biological processes of aging. In addition, we will emphasize causes of variation in health and mortality, rather than consequences of such patterns for other aspects of society. For example, we will examine the effects of smoking on health and mortality, but we will not consider the resulting financial costs of smoking-related illness and death.

GRADING: Grades will be based on four factors:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Class participation</td>
<td>10%</td>
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<tr>
<td>Presentation</td>
<td>20%</td>
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<tr>
<td>Problem sets</td>
<td>35%</td>
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<tr>
<td>Research paper</td>
<td>35%</td>
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</table>

Active participation is an important element of this course. It is expected that students will attend class regularly and be well prepared to discuss assigned readings. Problem sets and the research paper form the bulk of the grade for this course. Student presentations, during the last weeks of class, are another component.

PROBLEM SETS: The following problem sets will be distributed during the semester. The organization of topics follows part I of the course outline (see below). Check the calendar (also below) for due dates.

1. Fundamental concepts
2. Data sources and quality
3. Probabilities, rates, survival curves, laws of mortality
4. Mortality surfaces and life tables from complete data (direct estimation)
5. Active/healthy life expectancy, disability adjusted life years (DALYs)
6. Infant and child mortality from incomplete data (indirect estimation)
7. Adult mortality from incomplete data (indirect estimation)
ORGANIZATION

An outline of the material that is considered central to this course is given below. We will not be able to cover all of these topics in detail, but we will touch on all of them at some point. Students can also refer to this outline when choosing a research topic (for the paper and presentation).

I. Methods and materials
   A. Fundamental concepts
      1. incidence, prevalence
      2. mortality, morbidity, disability
      3. causes of death
      4. activities of daily living
   B. Data sources and quality
      1. vital statistics, census
      2. demographic and health surveys
      3. clinical trials
      4. health care providers (private or public)
      5. ethnographic observation
      6. archaeology
   C. Measures, models, and analyses
      1. probabilities, rates, survival curves, laws of mortality
      2. mortality surfaces and historical life tables, direct estimation
      3. active/healthy life expectancy, disability-adjusted life years (DALYs)
      4. model life tables, relational models, indirect estimation

II. Trends, variation, and explanation
   A. Age-related changes
      1. stages of the life course
      2. evolution of lifespan
      3. mechanisms of aging
      4. laws of mortality
   B. Time trends
      1. epidemiologic transitions
      2. historical forces of change
      3. quality of life, disability
      4. future prospects
   C. Differentials
      1. genetic variation
      2. social class, race, ethnicity
      3. sex, gender
      4. marital status, social support
      5. personal behaviors (e.g., smoking, diet, exercise, religion)
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Readings</th>
<th>Due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 28</td>
<td>Introduction</td>
<td>Meslé &amp; Vallin; Katz et al.; Ferrucci et al.; Verbrugge &amp; Jette</td>
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<tr>
<td>1</td>
<td>August 30</td>
<td>Fundamental concepts (I.A)</td>
<td>Meslé &amp; Vallin; Katz et al.; Ferrucci et al.; Verbrugge &amp; Jette</td>
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<tr>
<td>2</td>
<td>September 4</td>
<td>Stages of the life course (II.A.1)</td>
<td>Arking, Ch1-3</td>
<td>#1</td>
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<tr>
<td>2</td>
<td>September 6</td>
<td>Evolution of lifespan (II.A.2)</td>
<td>Arking, Ch4</td>
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<tr>
<td>3</td>
<td>September 11</td>
<td>Data sources and quality (I.B)</td>
<td>Preston et al.; Myers &amp; Manton; Redfern; Arnold</td>
<td></td>
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<tr>
<td>3</td>
<td>September 13</td>
<td>Guest lecture: Art Reingold, “Infectious disease and mortality decline in the developing world”</td>
<td>Ahmad et al.; Pison et al.; Ibrahim et al.</td>
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<tr>
<td>4</td>
<td>September 18</td>
<td>Mechanisms of aging (II.A.3)</td>
<td>Arking, Ch5</td>
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<tr>
<td>4</td>
<td>September 20</td>
<td>Laws of mortality (II.A.4)</td>
<td>Wilmoth [2]; Strehler &amp; Mildvan</td>
<td>#2</td>
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<tr>
<td>5</td>
<td>September 25</td>
<td>Probabilities, rates, survival curves, laws of mortality (I.C.1)</td>
<td>Palmore &amp; Gardner, Ch1; Elandt-Johnson &amp; Johnson, Ch2; Kannisto et al.</td>
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<tr>
<td>5</td>
<td>September 27</td>
<td>Epidemiologic transitions (II.B.1)</td>
<td>Omran; Horiuchi; Preston &amp; Haines, Preface and Ch1</td>
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<tr>
<td>6</td>
<td>October 2</td>
<td>Historical forces of change (II.B.2)</td>
<td>McKeown, Intro and Ch8; Fogel; Preston &amp; Haines, Ch6</td>
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<td>6</td>
<td>October 4</td>
<td>Quality of life, disability (II.B.3)</td>
<td>Manton &amp; Gu; Robine et al.; Murray &amp; Lopez; Murry &amp; Lopez</td>
<td>#3</td>
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<tr>
<td>7</td>
<td>October 9</td>
<td>Mortality surfaces and historical life tables (I.C.2)</td>
<td>Wilmoth [4]; Keyfitz, Ch2; Palmore &amp; Gardner, Ch2</td>
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<td>7</td>
<td>October 11</td>
<td>Future prospects (II.B.4)</td>
<td>Wilmoth [1], incl. letters; Lee and Carter; Olshansky et al., incl. letter; Wilmoth [3]; Arking, Ch7</td>
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<td>8</td>
<td>October 16</td>
<td>Guest lecture: Judith Campisi, “Understanding and controlling cancer”</td>
<td>Cairns; Heimann and Hellman</td>
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<td>8</td>
<td>October 18</td>
<td>Genetic variation (II.C.1)</td>
<td>Miller; Kerber et al.; McGue et al.; Arking, Ch6</td>
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<td>9</td>
<td>October 23</td>
<td>Active/healthy life expectancy, disability-adjusted life years (I.C.3)</td>
<td>Murray; Williams</td>
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<td>9</td>
<td>October 25</td>
<td>Guest lecture: TBA</td>
<td>TBA</td>
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CALENDAR (cont.)

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Readings</th>
<th>Due dates</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>October 30</td>
<td>Social class differentials (II.C.2)</td>
<td>Feinstein; Adler et al.</td>
<td>#5</td>
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<tr>
<td></td>
<td>November 1</td>
<td>Sex and gender differentials (II.C.3)</td>
<td>Waldron; Vallin</td>
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<td>11</td>
<td>November 6</td>
<td>Model life tables, indirect estimation (I.C.4)</td>
<td>Coale &amp; Demeny, Ch1-3; United Nations, Ch1-3</td>
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<td>November 8</td>
<td>Marital status, social support (II.C.4)</td>
<td>House et al.; Goldman [1] and [2]</td>
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<td>12</td>
<td>November 13</td>
<td>Personal behaviors (II.C.5)</td>
<td>Freedman &amp; Petitti; Peto et al.; Poikolainen; Taubes</td>
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<td>November 15</td>
<td>Guest lecture: TBA</td>
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<td>13</td>
<td>November 20</td>
<td>Relational models, indirect estimation (I.C.4, cont.)</td>
<td>Timaeus [1] and [2]</td>
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<td>November 22</td>
<td>THANKSGIVING</td>
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<td>14</td>
<td>November 27</td>
<td>Presentations: TBA</td>
<td>TBA</td>
<td>#7</td>
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<td></td>
<td>November 29</td>
<td>Presentations: TBA</td>
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<tr>
<td>15</td>
<td>December 4</td>
<td>Presentations: TBA</td>
<td>TBA</td>
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<tr>
<td></td>
<td>December 6</td>
<td>Presentations: TBA</td>
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</table>

READING LIST


Feinstein, Jonathan S. The relationship between socioeconomic status and health: A review of the


