

## **Syllabus for HCI 590: Consumer Health Informatics**

### **Instructor**

Dr. Enid Montague

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Office Hours: Monday and Wednesday 4-5pm

### **Course Meeting**

Tuesdays 5:45 - 9:00 and online

LEWIS 01509 at Loop Campus (but verify with Campus Connect)

### **Course References**

No textbook- just course readings, you are responsible for retrieving the readings from the library databases

### **Course Overview**

Consumer health informatics (CHI) is a rapidly-expanding area of informatics practice, with career opportunities emerging in the public, non-profit and private sectors. Broadly, the field aims to give individual health care consumers, as well as their families and communities, the information and tools that they need to help them become more involved in their health and health care. In this course, students will become familiar with a range of CHI applications, including the needs/problems that the applications address, their theoretical bases, their technical architectures, and relevant evaluation results. Building on this prior CHI work, students will acquire an ability to evaluate existing applications, and to generate theory-informed design and implementation strategies for CHI applications. Students will also learn to assess the needs and technological practices of potential users, with a particular focus on groups that experience health and information access disparities, and to select appropriate evaluation approaches based on an application's technological maturity.

### **Course Objectives**

1. Compare and evaluate a range of consumer health informatics (CHI) applications.
2. Generate CHI design and implementation principles and guidelines that incorporate theories from the behavioral, social and environmental sciences.
3. Assess consumers' health-related needs, resources and technology-oriented practices, and evaluate their implications for CHI applications.
4. Plan the design, implementation and evaluation of a new, theory-informed CHI application to address the health need(s) of a particular audience.

### Grade Determination

55%	4 Team Projects Project 1- 10% Project 2- 10% Project 3- 10% Project 4- 10% Final paper-15%
30%	Discussion Board Contribution
15%	Individual and Team Contribution

### Projects

Team projects will generally be completed in groups of three, four or five. Groups will be randomly assigned. Most groups will consist of students from both the on-campus section and the online section. Some class time will be used to coordinate among group members. When possible, online members are encouraged to communicate with the in-class groups using collaborative tools such as Skype and chat programs.

All group members are jointly responsible for the entire assignment, although the group may assign primary roles to each group member. Generally, each group member will receive the same score on each project. However, in some cases, additional credit may go to those who make an exceptional contribution to a project and reduced credit to those who contribute little to a project. Any adjustment will be based on a variety of indications including group participation in class, contribution summaries in reports, and student feedback at the end of the quarter.

There are four group projects for this course:



Project reports should be submitted by the deadline in the syllabus to the D2L submission site. In class presentations for projects will. All submitted work (e.g. project reports, peer reviews, online discussions) must be original work unless its source is clearly referenced. Failure to clearly attribute quotes or designs from other people's work constitutes plagiarism. Violations will generally receive no credit for a given submission.

### *Discussion Board Contribution*

Each week a discussion board question will be posted. For full participation credit, students must post a response to the question and respond to at least 2 other posts. Responses should be thoughtful and supported by course readings, lectures, and outside sources.

### *Individual and Team contribution*

The score for individual contribution to class and team projects is based on contributions to class activities, documented contributions in team reports, observed team activities (in class, email or group message boards) and team member reports at the end of the quarter. Students who make solid contributions to their team projects and regularly participate in class (i.e. weekly contribution) receive at least 90% of the contribution points. Weekly contribution includes attendance for on-campus students and online posts for online students and those who need to miss a class. Exceptional contributions receive more than 90%.

Team presentations occur in the last week of class. All students should contribute to the presentation, although all members do not need to be physically present for the presentation. At the end of the quarter every student is expected to submit a completed evaluation form for each group member.

### *CDM Participant pool*

Please sign up for the CDM participant pool. Please volunteer for at least one study over the course of the quarter.

<https://depaulurparticipant.sona-systems.com/default.aspx?logout=Y>

### **Policies**

- Students are expected to attend every class or watch the lecture online.
- No late assignments will be accepted without an excused absence cleared by the dean of students office (see forms for submitting an excused absence).
- All grade challenges must be submitted in writing and include an explanation why the given score or grade should be reconsidered.

*School policies on instructor evaluation, email, plagiarism, course withdrawal, absences, incompletes and students with disabilities.*

## Course Schedule

Week	Topic	Reading	Project	Discussion Board
1 (March 27)	<b>Intro to consumer health informatics</b> <ul style="list-style-type: none"> <li>• <b>Guest lecture: Christine McClure</b></li> <li>• Activity: finding literature about a consumer health problem</li> </ul>	<u>Theory and Research</u> <ul style="list-style-type: none"> <li>• Lattie, E.G., Schueller, S.M., Sargent, E., Stiles-Shields, E.C., Tomasino, K.N., Corden, M.E., Begale, M., Karr, C., &amp; Mohr, D.C. (2016) Uptake and usage of IntelliCare: A publicly available suite of mental health and wellbeing apps. <i>Internet Interventions</i>, 4, 152-158.</li> <li>• Lattie, E.G., Duffecy, J., Mohr, D.C., &amp; Kashima, K. (2017). Development and evaluation of an online mental health program for medical students. <i>Academic Psychiatry</i>. doi: 10.1007/s40596-017-0726-</li> </ul>		
2 (April 3)	<b>Understanding patient health</b> <ul style="list-style-type: none"> <li>• <b>Guest lecture: Emily Lattie, Ph.D.</b></li> <li>• Activity: inspirational designs</li> </ul>	<b>Consumer Health Informatics Overview</b> <u>Theory and Research</u> <ul style="list-style-type: none"> <li>• Gibbons, M.C. (2011) Consumer health informatics: results of a systematic evidence review and evidence based recommendations. <i>Translational Behavioral Medicine</i>, 1(1), 72-82.</li> <li>• Hesse, B. W., Hansen, D., Finholt, T., Munson, S., Kellogg, W., &amp; Thomas, J. C. (2010). Social participation in Health 2.0. <i>Computer</i>, 43(11), 45-52.</li> </ul> <u>Cases/Examples</u> <ul style="list-style-type: none"> <li>• Braunstein ML. (2013). Chapter 6: Empowering the Patient. <i>Health Informatics in the Cloud</i>. (pp. 67-79). New York, NY: Springer.</li> <li>• Smith, K. (2013). Chapter 1: Who are Digital Outcasts? <i>Digital Outcasts: Moving Technology Forward Without Leaving People Behind</i>. (pp. 1-21). San Diego: Morgan Claypool, 2013.</li> </ul> <u>Advanced Resources (Optional)</u> <ul style="list-style-type: none"> <li>• Gibbons, M.C., Wilson, R.F., Samal, L., Lehmann, C.U., Dickersin, K., Lehmann, H.P., et al. (2009) Impact of consumer health informatics applications. Rockville, MD: Agency for Healthcare Research and Quality. Available: <a href="http://www.ahrq.gov/research/findings/evidence-based-reports/er188-abstract.html">http://www.ahrq.gov/research/findings/evidence-based-reports/er188-abstract.html</a></li> <li>• Webb, T.L., Joseph, J., Yardley, L., Michie, S. (2010). Using the internet to promote health behavior change: a systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of</li> </ul>		What are the major types of consumer health informatics (CHI) applications?  What impacts have CHI applications had, and for whom?  (Due April 3)

		delivery on efficacy. Journal of Medical Internet Research, 12(1), e4. Available: <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2836773/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2836773/</a>		
<b>3 (April 10)</b>	<b>Health behavior models</b> <ul style="list-style-type: none"> <li>• <b>Present findings from understanding needs</b></li> <li>• Activity: Discussion about using theory and needs to inform new designs</li> </ul>	<b>Health behavior change</b> <p><u>Theory and Research</u></p> <ul style="list-style-type: none"> <li>• Montano, D. E., &amp; Kasprzyk, D. (2008). Chapter 4. Theory of Reasoned Action, Theory of Planned Behavior, and the Integrated Behavioral Model. In K. Glanz, B. K. Rimer &amp; K. Viswanath (Eds.), Health Behavior and Health Education: Theory, Research and Practice (4th ed., pp. 67-96). San Francisco, CA: Jossey-Bass.</li> </ul> <p><u>Cases/Examples</u></p> <ul style="list-style-type: none"> <li>• Get Active!</li> <li>• Hurling, R., Hayet, C.M., De Boni, M., Fairley, B.W., Hurst, T., Murray, P., Richardson, A., Sodhi, J.S. (2007). Using Internet and Mobile Phone Technology to Deliver an Automated Physical Activity Program: Randomized Controlled Trial. Journal of Medical Internet Research, 9(2), e7, URL: <a href="http://www.jmir.org/2007/2/e7/">http://www.jmir.org/2007/2/e7/</a>.</li> <li>• Hayet, C.M., Hurling, R., Newby, B.P., Patel, S. (2005). Method and apparatus for assisting behavioural change. US Patent 8,150,707. Available: <a href="https://docs.google.com/viewer?url=patentimages.storage.googleapis.com/pdfs/US8150707.pdf">https://docs.google.com/viewer?url=patentimages.storage.googleapis.com/pdfs/US8150707.pdf</a> (skim)</li> <li>• Commercialized version: <a href="http://www.imperativehealth.com/">http://www.imperativehealth.com/</a></li> </ul> <p><u>Techniques</u></p> <ul style="list-style-type: none"> <li>• Abraham C, Michie S. (2008). A taxonomy of behavior change techniques used in interventions. Health Psychology, 27(3), 379-87.</li> <li>• Buxton, W., Greenberg, S., Carpendale, S., Marquardt, N., &amp; ScienceDirect. (2011). The Narrative Storyboard. Sketching User Experiences. San Diego: Morgan Kaufmann, 167-177.</li> <li>• Carroll, J. M. (1999). Five reasons for scenario-based design. In Proceedings of the 32nd annual Hawaii International Conference System Sciences, 1-11.</li> </ul> <p><u>Advanced Resources (Optional)</u></p> <ul style="list-style-type: none"> <li>• Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179-211.</li> <li>• Fishbein, M. and Yzer, M. C. (2003). Using Theory to Design Effective Health Behavior Interventions. Communication Theory, 13: 164–183.</li> <li>• National Cancer Institute. (2005) Theory at a glance: A Guide for Health Promotion Practice. (2<sup>nd</sup> ed.) Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute.</li> </ul>	Project 1: Understanding health consumers (Due April 10)	<p>How can one apply the Theory of Reasoned Action (TRA)/Theory of Planned Behavior (TPB)/Integrated Behavioral Model (IBM) to the design of consumer health informatics applications?</p> <p>How was this accomplished in the case study?</p> <p>(Due April 10)</p>
<b>4 (April 17)</b>	<b>Health behavior change</b>	<b>Health behavior change</b> <p><u>Theory and Research</u></p>		For consumers and patients, what are the

	<ul style="list-style-type: none"> <li>Activity: scenario based design</li> </ul>	<ul style="list-style-type: none"> <li>McAlister, A. L., Perry, C. L., &amp; Parcel, G. S. (2008). Chapter 8. How individuals, environments, and health behaviors interact. Social cognitive theory. In K. Glanz, B. K. Rimer &amp; K. Viswanath (Eds.), Health Behavior and Health Education. Theory, Research and Practice (4th ed., pp. 169- 188). San Francisco, CA: Jossey-Bass.</li> </ul> <p><u>Cases/Examples</u></p> <ul style="list-style-type: none"> <li>Watch, Discover, Think, and Act</li> <li>Bartholomew, L.K., et al. (2000). Watch, Discover, Think, and Act: a model for patient education program development. Patient Education and Counseling, 39, 253-268.</li> <li>Shegog, R., et al. (2006). Asthma Management Simulation for Children: Translating Theory, Methods, and Strategies to Effect Behavior Change. Simulation in Healthcare, 1(3), 151-159. o</li> <li>Shegog, R., Bartholomew, L. K., Parcel, G. S., Sockrider, M. M., Mâsse, L., &amp; Abramson, S. L. (2001). Impact of a computer-assisted education program on factors related to asthma self-management behavior. Journal of the American Medical Informatics Association, 8(1), 49-61 (skim)</li> </ul> <p><u>Techniques</u></p> <ul style="list-style-type: none"> <li>Hekler, E.B., Klasnja, P., Froelich, J.E., Buman, M.P. (2013) Mind the Theoretical Gap: Interpreting, Using, and Developing Behavioral Theory in HCI Research. Proceedings of the 2013 Conference on Human-Computer Interaction (CHI), April 27–May 2, 2013, Paris, 1-10.</li> </ul> <p><u>Advanced Resources (Optional)</u></p> <ul style="list-style-type: none"> <li>Bandura, A. (2004). Health Promotion by Social Cognitive Means. Health Education &amp; Behavior, 31, 143–164.</li> <li>Baranowski, T., Buday, R., Thompson, D.I., Baranowski, J. (2008) Playing for Real: Video Games and Stories for Health-Related Behavior Change. American Journal of Preventive Medicine, 34(1), 74-82.</li> </ul>		effects of self-monitoring?
5 (April 24)	<p><b>Health behavior change</b></p> <ul style="list-style-type: none"> <li>Guest lecture: Raed Mansour</li> <li>Present scenarios and storyboards</li> </ul>	<p><b>Health behavior change</b></p> <p><u>Theory and Research</u></p> <ul style="list-style-type: none"> <li>Klasnja, P., &amp; Pratt, W. (2012). Healthcare in the pocket: Mapping the space of mobile-phone health interventions. Journal of Biomedical Informatics, 45(1), 184-198.</li> <li>Webb, T. (2013). Self-Monitoring. In M. Gellman &amp; J. R. Turner (Eds.), Encyclopedia of Behavioral Medicine (pp. 1748-1750). New York: Springer.</li> <li>Wolfe, G. (2009). Know thyself: Tracking every facet of life, from sleep to mood to pain. Wired, 17(7), Retrieved from <a href="http://www.wired.com/medtech/health/magazine/17-07/lbnp_knowthyself">http://www.wired.com/medtech/health/magazine/17-07/lbnp_knowthyself</a></li> </ul> <p><u>Cases/Examples</u></p> <ul style="list-style-type: none"> <li>Dietary Intake Monitoring Application (DIMA)</li> <li>Connelly, K., Siek, K. A., Chaudry, B., Jones, J., Astroth, K., &amp; Welch, J. L. (2012).</li> </ul>	Project 2: storyboarding	<p>How can one apply Socio-cognitive theory (SCT) to the design of consumer health informatics applications?</p> <p>How was this accomplished in the case studies?</p>

		<p>An offline mobile nutrition monitoring intervention for varying-literacy patients receiving hemodialysis: a pilot study examining usage and usability. Journal of the American Medical Informatics Association, 19(5), 705-712.</p> <ul style="list-style-type: none"> <li>• Welch, J. L., Siek, K. A., Connelly, K. H., Astroth, K. S., McManus, M. S., Scott, L., et al. (2010). Merging health literacy with computer technology: self-managing diet and fluid intake among adult hemodialysis patients. Patient Education &amp; Counseling, 79(2), 192-198.</li> <li>• Siek, K. A. DIMA: Designing Assistive Technologies for Dialysis Patients. Available: <a href="http://www.cs.colorado.edu/~ksiek/INDEX_PAGE/Publications/Tapia_DoctoralConsortium.pdf">http://www.cs.colorado.edu/~ksiek/INDEX_PAGE/Publications/Tapia_DoctoralConsortium.pdf</a></li> </ul> <p><u>Techniques</u></p> <ul style="list-style-type: none"> <li>• Zayas-Caban, T. and Marquard, J.L. (2009). A Holistic and Human Factors Evaluation Framework for the Design of Consumer Health Informatics Interventions. Proceedings of the 53<sup>rd</sup> Annual Human Factors and Ergonomics Meeting, 1003-1007</li> </ul> <p><u>Advanced Resources (Optional)</u></p> <ul style="list-style-type: none"> <li>• McFall, R. M. (1977). Parameters of Self-Monitoring. In R. B. Stuart (Ed.), Behavioral Self- Management: Strategies, Techniques and Outcomes (pp. 196-214). New York: Brunner/Mazel.</li> </ul>		
6 (May 1)	<p><b>Social support and informal care</b></p> <ul style="list-style-type: none"> <li>• <b>Guest lecture: Jenna Duffecy, Ph.D.</b></li> <li>• Pratt, Wanda. Video lecture on HealthWeaver: <a href="http://vimeo.com/20480876">http://vimeo.com/20480876</a></li> </ul>	<p><b>Social support and informal care</b></p> <p><u>Theory and Research</u></p> <ul style="list-style-type: none"> <li>• Family Caregiver Alliance. (2013). Digital Technology for the Family Caregiver. San Francisco, CA: Family Caregiver Alliance. Available: <a href="http://www.caregiver.org/caregiver/jsp/content_node.jsp?nodeid=2587">http://www.caregiver.org/caregiver/jsp/content_node.jsp?nodeid=2587</a></li> <li>• Raina, P., O'Donnell, M., Schwellnus, H., Rosenbaum, P., King, G., Brehaut, J., et al. (2004). Caregiving process and caregiver burden: Conceptual models to guide research and practice. BMC Pediatrics, 4(1), 1-13.</li> <li>• Williams, K., Arthur, A., Niedens, M., Moushey, L., &amp; Huffles, L. (2013). In-Home Monitoring Support for Dementia Caregivers. Clinical Nursing Research, 22(2), 139-150.</li> </ul> <p><u>Cases/Examples</u></p> <ul style="list-style-type: none"> <li>• Caring Bridge - <a href="http://www.caringbridge.org/">http://www.caringbridge.org/</a></li> <li>• Lotsa Helping Hands - <a href="http://www.lotsahelpinghands.com/">http://www.lotsahelpinghands.com/</a></li> <li>• Alzheimers care team calendar – <a href="https://www.alz.org/care/alzheimers-dementia-care-calendar.asp">https://www.alz.org/care/alzheimers-dementia-care-calendar.asp</a></li> </ul> <p><u>Techniques</u></p> <ul style="list-style-type: none"> <li>• Carroll, J. M. (1999). Five reasons for scenario-based design. In Proceedings of</li> </ul>		<p>What ways to people engage in social support and informal care in everyday life? Which of these are supported by technology and which are not?</p>

		<p>the 32nd annual Hawaii International Conference System Sciences, 1-11.</p> <p><u>Advanced Resources (Optional)</u></p> <ul style="list-style-type: none"> <li>• Fox, S., Brenner, J. (2012). Family Caregivers Online. Washington, DC: Pew Internet &amp; American Life Project. Available: <a href="http://www.pewinternet.org/Reports/2012/Caregivers-online.aspx">http://www.pewinternet.org/Reports/2012/Caregivers-online.aspx</a></li> <li>• Rosson, M.B., Carroll, J.M. (2006). Scenario-Based Design. Human-Computer Interaction: Development Process. Boca Raton, FL: CRC Press, 95-120.</li> </ul>		
7 (May 8)		<p><b>Social support and informal care</b></p> <p>Theory and Research</p> <ul style="list-style-type: none"> <li>• Haney, C &amp; Israel B. (2008). Chapter 9. Social Networks and Social Support. In K. Glanz, B. K. Rimer &amp; K. Viswanath (Eds.), Health Behavior and Health Education. Theory, Research and Practice (4th ed., pp. 67-96). San Francisco, CA: Jossey-Bass.</li> <li>• Munson, S. (2011). Beyond the share button: Making social network sites work for health and wellness. Potentials, IEEE, 30(5), 42-47.</li> </ul> <p><u>Cases/Examples</u></p> <ul style="list-style-type: none"> <li>• HealthWeaver</li> <li>• Skeels, M. M., Unruh, K. T., Powell, C., &amp; Pratt, W. (2010). Catalyzing social support for breast cancer patients. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 173-182.</li> <li>• Hartzler, A., Skeels, M. M., Mukai, M., Powell, C., Klasnja, P., &amp; Pratt, W. (2011). Sharing is caring, but not error free: transparency of granular controls for sharing personal health information in social networks. AMIA Annu Symp Proc, 2011, 559-568.</li> </ul> <p><u>Techniques</u></p> <ul style="list-style-type: none"> <li>• Buxton, W., Greenberg, S., Carpendale, S., Marquardt, N., &amp; ScienceDirect. (2011). The Narrative Storyboard. Sketching User Experiences. San Diego: Morgan Kaufmann, 167-177.</li> </ul> <p><u>Advanced Resources (Optional)</u></p> <ul style="list-style-type: none"> <li>• Bull, S. S., Levine, D. K., Black, S. R., Schmiede, S. J., &amp; Santelli, J. (2012). Social Media– Delivered Sexual Health Intervention: A Cluster Randomized Controlled Trial. American Journal of Preventive Medicine, 43(5), 467-474.</li> <li>• Newman, M. W., Lauterbach, D., Munson, S. A., Resnick, P., &amp; Morris, M. E. (2011, March). "It's not that I don't have problems, I'm just not putting them on Facebook": Challenges and opportunities in using online social networks for health. In Proceedings of the ACM 2011 conference on Computer supported cooperative work (pp. 341-350).</li> </ul>		What is the range of technical possibilities for engaging one's social network for support?



8 (May 15)	<b>Community and Environmental Health</b>  <b>Guest speaker: Colleen Stiles-shields, PhD</b>  <ul style="list-style-type: none"> <li><b>Present paper prototypes</b></li> </ul>	<b>Community and Environmental Health</b>  <u>Theory and Research</u> <ul style="list-style-type: none"> <li>Goldman, D.P., Lakdawalla, D. (2005). A Theory of Health Disparities and Medical Technology Contributions to Economic Analysis &amp; Policy, 4(1): 1-30. Available: <a href="http://works.bepress.com/cgi/viewcontent.cgi?article=1019&amp;context=dana_goldman">http://works.bepress.com/cgi/viewcontent.cgi?article=1019&amp;context=dana_goldman</a> (skim)</li> <li>Veinot, T. C., Meadowbrooke, C. C., Loveluck, J., Hickok, A., &amp; Bauermeister, J. A. (2013). How "community" matters for how people interact with information: Mixed methods study of young men who have sex with other men. Journal of Medical Internet Research, 15(2), e33. Available: <a href="http://www.jmir.org/2013/2/e33/">http://www.jmir.org/2013/2/e33/</a></li> </ul> <u>Cases/Examples</u> <ul style="list-style-type: none"> <li>I-Decide – <a href="http://idecide.org/">http://idecide.org/</a></li> </ul> <u>Techniques</u> <ul style="list-style-type: none"> <li>Lancaster, G. A., Dodd, S., &amp; Williamson, P. R. (2004). Design and analysis of pilot studies: recommendations for good practice. Journal of Evaluation in Clinical Practice, 10(2), 307-312.</li> </ul> <u>Advanced Resources (Optional)</u> <ul style="list-style-type: none"> <li>Jimison, H., Gorman, P. N., Nygren, P., Walker, M., Norris, S., &amp; Hersh, W. (2009). Barriers and drivers of health information technology use for the elderly, chronically ill and underserved. Rockville, MD: Agency for Healthcare Research and Quality. Available: <a href="http://www.ncbi.nlm.nih.gov/books/NBK38653/">http://www.ncbi.nlm.nih.gov/books/NBK38653/</a></li> <li>Parker, A. G. (2013). Designing for health activism. interactions, 20(2), 22-25.</li> <li>Smith, A. (2013). Technology Adoption by Lower Income Populations. Washington, DC: Pew Internet &amp; American Life Project. Available: <a href="http://pewinternet.org/Presentations/2013/Oct/Technology-Adoption-by-Lower-Income-Populations.aspx">http://pewinternet.org/Presentations/2013/Oct/Technology-Adoption-by-Lower-Income-Populations.aspx</a></li> </ul>	Project 3: paper prototypes	What are the possibilities for technology to reduce or increase health disparities?
9 (May 22)	<b>No class- build prototypes and user testing</b>	<b>Community and Environmental Health</b>  <u>Theory and Research</u> <ul style="list-style-type: none"> <li>Friedman, D. J., &amp; Parrish, R. G. (2010). The population health record: concepts, definition, design, and implementation. Journal of the American Medical Informatics Association, 17(4), 359-366.</li> <li>Kamel Boulos, M. N., Roudsari, A. V., &amp; Carson, E. R. (2001). Health Geomatics: An Enabling Suite of Technologies in Health and Healthcare. Journal of Biomedical Informatics, 34(3), 195- 219.</li> <li>Morello-Frosch, R., Zuk, M., Jerrett, M., Shamasunder, B., &amp; Kyle, A. D. (2011). Understanding The Cumulative Impacts Of Inequalities In Environmental Health: Implications For Policy. Health Affairs, 30(5), 879-887.</li> </ul> <u>Cases/Examples</u> <ul style="list-style-type: none"> <li>Cromley, E. K., &amp; McLafferty, S. (2012). Chapter 3: Spatial databases for public</li> </ul>		What do you think is the future of consumer health informatics?  What do you think will be the next big innovation in health applications for patients?

		<p>health. GIS and public health. (pp. 75-112) New York: Guilford Press.</p> <p><u>Techniques</u></p> <ul style="list-style-type: none"> <li>• Cromley, E. K., &amp; McLafferty, S. (2012). Chapter 1: Geographic Information Systems. GIS and public health. (pp. 15-42) New York: Guilford Press.</li> </ul> <p><u>Advanced Resources (Optional)</u></p> <ul style="list-style-type: none"> <li>• Cromley, E. K., &amp; McLafferty, S. (2012). Chapter 4: Mapping health information. GIS and public health. (pp. 113-149) New York: Guilford Press.</li> <li>• Cromley, E. K., &amp; McLafferty, S. (2012). Chapter 5: Analyzing spatial clustering of health events. GIS and public health. (pp. 150-182) New York: Guilford Press.</li> </ul>		
<b>10 (May 29)</b>	<b>Present final evaluation results</b>		Project 4: User testing	
<b>Final (May 29-June 5)</b>			Project 5: Final paper due	

#### Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/> If you have any questions be sure to consult with your professor.

#### Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the [University Academic Calendar](#). Information on enrollment, withdrawal, grading and incompletes can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>.

#### Students with Disabilities

- Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.
- To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: Lewis Center 1420, 25 East Jackson Blvd.  
Phone number: (312) 362-8002  
Fax: (312) 362-6544  
TTY: (773) 325-7296