

# Seminar in eHealth Applications

JOMC/HBEH 795

University of North Carolina at Chapel Hill

Spring 2016

Fridays 12:30 – 3:15 p.m.

340A Carroll Hall

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## **Course Objectives:**

The rapid advance of computer and media technologies is providing new opportunities for health communication. Whereas traditional health communication efforts have tended to be interpersonal (e.g., face-to-face counseling) or mediated by traditional media (e.g., print, radio, television), health communication efforts based on technology applications such as Internet websites and mobile devices are becoming increasingly popular. The collective term that represents this emerging, interdisciplinary field is eHealth, which is defined as “*The use of emerging information and communication technology, especially the Internet, to improve or enable health and health care*” (Eng, 2001). This field covers topics from consumers searching the Internet for health information, to practitioners using social media to enhance their outreach efforts, to researchers developing and evaluating eHealth applications to improve health.

There is much excitement surrounding eHealth. Compared to more traditional approaches, eHealth technologies are capable of delivering health content that is more 1) individualized, interactive, and multimedia capable; 2) convenient, accessible, appealing, low cost, and disseminable; and 3) standardized, flexible, and automated. Many eHealth technologies combine the best attributes of interpersonal and mass communication channels, resulting in applications that have the potential for both high reach and high efficacy.

The purpose of the current seminar is to provide an opportunity for in-depth study of the eHealth field. We will examine the context of the digital age and what consumers are engaged in online with regard to health; the history of eHealth and its “roots”; interactivity and its relationship to eHealth; the variety of eHealth applications that exist, including Internet websites, computer-tailored interventions, health video games, avatars, interactive voice response technology, text-messaging interventions, mobile “apps,” social media, and others; eHealth design and evaluation strategies; implementation and dissemination research and its application to eHealth; policy issues that influence the eHealth field; issues related to adapting to a rapidly changing eHealth field; and future directions for eHealth practice and research.

## **Readings**

We will use the following book as our main text. Several other readings will be posted on the course Sakai website.

Noar, S.M., & Harrington, N.G. (Eds., 2012). *eHealth applications: Promising strategies for behavior change*. New York: Routledge.

## **Course Requirements and Grading**

Grades will be based on the following:

|   |            |
|---|------------|
| Discussion activities and class participation | <b>10%</b> |
| Upstream blog assignment                      | <b>10%</b> |
| Case paper and presentation                   | <b>25%</b> |
| <b>Research Paper and Presentation</b>        | <b>55%</b> |
| Research Paper                                | 40         |
| Research Presentation                         | 15         |

All students should come to the seminar prepared to discuss the day's readings. Assignments should be turned in on time. You cannot fully participate if you are not in class. Please stay in communication with me if you have a conflict.

### **Grading for the class will be determined as follows:**

**H** Student reads and critically engages with all of the assigned material. Participation in discussion and written assignments exhibit the ability not only to apply the material, but also to extrapolate ideas, expand into new areas, and contribute to the body of scholarship in the area. Reserved for truly extraordinary work (i.e., A+).

**P** Student usually reads and engages critically with the assigned material. Able to apply material and extrapolate ideas. Consistently good work done on time (i.e., A/B).

**L** Student reads and engages critically with only some of the assigned material. Able to apply the material and extrapolate ideas in only some instances (i.e., C).

**F** Student occasionally misses class, does not always read the material, fails to critically engage with it, and is unable or unwilling to apply the material (i.e., below C).

## ***Discussion Questions and Class Participation***

This course is designed as a seminar in which careful reading and in-depth discussions are used to achieve our learning goals. To ensure that everyone reads and has an active stake in the discussion process, students are required to submit at least 2 discussion questions each week. Questions should be thoughtful inquiries related to the week's readings that will help foster discussion on that particular week's topics. Please post your questions on the Sakai website (under "Forum" where the entire class can view them) by 9am on the Friday morning of class. These questions will help stimulate discussion each day. Active class participation in discussions is very important for a collaborative learning environment.

Also, all students will sign up to be 'discussion leaders' for 1 week of class. Our goal is to have at least 1 student discussion leader on all or most days so that the student can lead the discussion on that day (Dr. Noar will assist). It may be useful for the discussion leader to organize the class-generated discussion questions into groups/themes, and bring that list with them on the discussion-leading day (I would be grateful if you also would provide me a hard copy!). The discussion leader is welcome to bring additional questions and anything else that he/she thinks will help stimulate discussion on the topic (we have technology in our classroom!). All of the discussion activities (developing discussion questions, co-leading discussion, and class participation) will contribute a portion to your grade for the course (10% of grade).

**Tips:** A good discussion question provides a springboard for exploring the issues raised in the articles. For example, are there common themes that run through the readings? Are there differences highlighted by alternative theories or approaches? Is something you read really in line with (or does it go against) your personal experience? Other good questions might include critiques of the studies, real-world applications, and connections to previous readings or topics.

## ***Upstream Blog***

To facilitate reflection on issues related to health communication and eHealth, we will use a 21<sup>st</sup> century medium – the Upstream blog. Upstream is a health communication blog that is administered by the Interdisciplinary Health Communication (IHC) Colloquium students, who are pursuing either an IHC certificate or an IHC track master's degree. It strives to be the premier source for up-to-date, stimulating health communication information and discussion for students, faculty, health practitioners and other interested persons. The blog promotes dialogue and lively discussions on topics related to health communication among all blog visitors. You can view it at: <http://upstreamdownstream.org/>

I encourage all students to read the blog and comment on it as they wish. Also, across the semester you will be required to contribute 1 story to the blog as a "guest blogger." The topic should be current and related to eHealth. Entries are typically 150-250 words and will require coordination with the guest blogger editor (we will discuss this more in class). All of the Upstream activities together (comments and posts) will constitute 15% of your grade.

## ***Case Studies***

To ensure that we have concrete examples of eHealth applications, each student will prepare one case study to present briefly (about 10-15 minutes) to the class. The case should be based on a completed or on-going eHealth communication intervention, found in the published literature.

**\*Students should search the literature and find a relevant eHealth study to be approved by Dr. Noar the week before the presentation is made.\***

Students will present cases in class and hand in the written assignment at the end of the class period. Please prepare a two-page (maximum), 12pt. font, single spaced, one-inch margins all around summary of the case that includes any/all of the following from the article:

1. Complete citation in APA style
2. Statement of health problem that the intervention was designed to address
3. Theories and process guiding intervention development
4. Description of the application/intervention
5. Outcomes assessed and evaluation results
6. Lessons learned and critique

In class, the presenter will introduce and describe the case (about 10-15 mins). After the case is presented, students can ask questions and discussion will ensue.

If possible, please include examples of messages/screen shots/etc. of the intervention in your powerpoint presentation. We will have access to the Web as well, if any materials are available there (it's always worth it to take a look). The total assignment (presentation and paper) is worth 25% of your grade.

## ***Research Paper and Presentation***

### ***Research Paper***

For this major paper, you will research a specialized area of eHealth of interest to you and write a paper on this topic. The topic should address issues pertinent to the development, implementation, or evaluation of eHealth applications, interventions, or content. You will first summarize the current literature in a specific area of eHealth. Then, you will 1) discuss important gaps in the literature and future directions for research and/or practice in the area (option #1), OR 2) present a proposal for the development of a new eHealth application or tool (option #2). A mini-proposal of the paper is due on 2/19 and the final paper is due on 4/22 (40% of grade).

The mini-proposal will be required early in the semester – this should include a draft title, paragraph overview of the proposed topic, current preference for option #1 or #2, and references. The mini-proposal should justify briefly why this is an important topic and describe what you will cover in the paper. Also, please conduct a preliminary literature search and include references for at least 3-5 peer-reviewed articles that you plan on citing in your paper to demonstrate that there is adequate published literature on this topic. Most of the literature that you cite in your paper should be either empirical studies or literature reviews that are published as journal articles or book chapters. Thus, this is not a paper where the main focus is a content analysis of existing eHealth resources. You can cite electronic sources, but please do not have these comprise the majority of the literature cited.

For the literature review, you will be reviewing and citing the studies of research that has been conducted and published. Answer a question in the paper and synthesize what other studies have shown. For instance, are smoking cessation text messaging programs efficacious? Are online weight loss programs effective? What do we know about how and why young people search for safer sex

information on the web? How are alcohol and tobacco companies using online advertising to influence youth behavior?

For the gaps and future directions (option #1), you should demonstrate your own thinking in the area in terms of gaps in the literature and directions for future research. For example, in the smoking text literature, what studies still need to be done? What theories should be applied, what messaging strategies tested, what target audiences studied, what research designs applied, and so forth? You can cite others' ideas here but be sure that some of your own ideas come through as well. You can choose to develop one of these ideas (e.g., theory) in depth, or discuss several areas but in less depth.

For the new eHealth application (option #2), you should present a proposal for a new eHealth application/intervention/tool. For example, in the smoking text literature, present a proposal for the development of a new smoking cessation text-messaging program. Who is your target audience, what theory or theories would be applied, how would you structure the content and timing of messages, what initial research would be required to begin developing such a program, and so forth. Be sure to justify your decisions in these areas. This is a development document/research proposal (no actual studies need to be performed), although again you have flexibility in your focus.

### ***Research Presentation***

You will also give a 15-minute oral presentation of your research paper. This is meant to “mimic” the academic practice of presenting at a conference and it also will allow you to share your completed paper with the class. These presentations will take place at the end of the semester, and should be an oral version of the territory that your paper covers. Thus, this as a presentation where you present all of the major sections of your paper in a format that is guided by a PowerPoint presentation (15% of grade).

| <b>Semester Schedule Overview</b> |  |                        |
|-----------------------------------|--|------------------------|
| <b>Date</b>                       | <b>Topics</b>  | <b>Assignments Due</b> |
|                                   | <b>Part 1: Introduction to eHealth</b>   |                        |
| Wk 1:<br>1/15                     | Introduction to course   |                        |
| Wk 2:<br>1/22                     | <i>The old normal and the new normal:</i> Internet, new media, the information age, health information access, how we got here |                        |
| Wk 3:<br>1/29                     | <i>How does it work?</i> Attributes and functions of eHealth; interactivity, presence  |                        |
| Wk 4:<br>2/5                      | <i>A road map:</i> Program development, development process and challenges   |                        |
|                                   | <b>Part 2: eHealth Applications</b>  |                        |
| Wk 5:<br>2/12                     | <i>Lets get connected:</i> Internet-based and computer-tailored interventions  |                        |
| Wk 6:<br>2/19                     | <i>Healthy on the go:</i> Mobile phone interventions   | Mini-proposal due      |
| Wk 7:<br>2/26                     | <i>All work and no play?</i> Health video games  |                        |
| Wk 8:<br>3/4                      | <i>Is this for real?</i> Avatars, virtual interactive interventions, and virtual reality                                       |                        |
| Wk 9:<br>3/11                     | <i>The new frontier:</i> Social media for health promotion   |                        |
| Wk 10:<br>3/18                    | No class: Spring break   |                        |
|                                   | <b>Part 3: Cross-cutting Issues in eHealth</b>   |                        |
| Wk 11:<br>3/25                    | No class: Good Friday holiday  |                        |
| Wk 12:<br>4/1                     | <i>Does it work? Will they use it?</i> Evaluation and dissemination of eHealth applications                                    |                        |

|                |   |                  |
|----------------|---|------------------|
|                |   |                  |
| Wk 13:<br>4/8  | <i>Whose data is it?</i> Policy, privacy, and ethical issues in eHealth   |                  |
| Wk 14:<br>4/15 | <i>eHealth Exemplars</i> : Guest speakers<br>Dr. Allison Lazard, Assistant Professor, School of MJ<br>Dr. Nori Comello, Assistant Professor, School of MJ |                  |
| Wk 15:<br>4/22 | Class presentations   | *Final paper due |

*\*Note: Project presentations will continue during the regularly scheduled final exam period.*

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| <i>Attendance, Participation, Academic Integrity</i> |
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**Participation:** The seminar format of this course requires full attendance and active participation by all students. The assigned readings should be read by the scheduled date. *All* students are expected to be able to participate in the discussion of each reading. Please let me know as soon as possible if there is an emergency or if you have a prior academic commitment that will keep you from attending a class session.

**Special Needs or Concerns:** If you have questions or needs related to a disability or any other area of concern, please come see me in person to discuss any accommodations that may be of help.

**Academic Integrity:** All UNC-CH students are expected to adhere to the University’s Honor Code, which includes the following re: Academic Dishonesty:

It shall be the responsibility of every student enrolled at the University of North Carolina to support the principles of academic integrity and to refrain from all forms of academic dishonesty, including but not limited to, the following:

- 1. Plagiarism** in the form of deliberate or reckless representation of another’s words, thoughts, or ideas as one’s own without attribution in connection with submission of academic work, whether graded or otherwise.
- 2. Falsification, fabrication, or misrepresentation of data**, other information, or citations in connection with an academic assignment, whether graded or otherwise.
- 3. Unauthorized assistance or unauthorized collaboration** in connection with academic work, whether graded or otherwise.

(For the full text of the Honor Code see <http://instrument.unc.edu/instrument.text.html>)

## *JOMC/HBEH 795 Seminar Readings*

### Week 1 - 1/15

No readings – first day of class

### Week 2 - 1/22

N&H Chapter 1 – eHealth Applications: An Introduction and Overview

N&H Chapter 2 – The Emergence of eHealth Applications

Ahern, D. K. (2007). Challenges and opportunities of eHealth research. *American Journal of Preventive Medicine*, 32(5 Suppl), S75-S82.

Neuhauser L, & Kreps GL. (2010). eHealth communication and behavior change: promise and performance. *Social Semiotics*, 20, 9-27.

### Week 3 - 1/29

N&H Chapter 3 – Interactivity: Conceptualizations, Effects, and Implications

Hawkins, R. P., Han, J. Y., Pingree, S., Shaw, B. R., Baker, T. B., & Roberts, L. J. (2010). Interactivity and presence of three eHealth interventions. *Computers in Human Behavior*, 26(5), 1081-1088.

Lee, K. M. (2004). Presence, explicated. *Communication Theory*, 14, 27-50.

Glasgow, R. E., Bull, S. S., Piette, J. D., & Steiner, J. F. (2004). Interactive behavior change technology: A partial solution to the competing demands of primary care. *American Journal of Preventive Medicine*, 27(2 Suppl), 80-87.

### Week 4 – 2/5

Abroms LC, Whittaker R, Free C, Mendel Van Alstyne J, & Schindler-Ruwisch JM. (2015). Developing and Pretesting a Text Messaging Program for Health Behavior Change: Recommended Steps, *JMIR Mhealth Uhealth*, e107.

Pagliari, C. (2007). Design and evaluation in eHealth: Challenges and implications for an interdisciplinary field. *Journal of Medical Internet Research*, 9(2), 32-42.

Skinner, H. A., Maley, O., & Norman, C. D. (2006). Developing Internet-based eHealth promotion programs: the Spiral Technology Action Research (STAR) model. *Health Promotion Practice*, 7(4), 406-417.

Ybarra, M. L., Holtrop, J. S., Bagci Bosi, A. T., & Emri, S. (2012). Design considerations in developing a text messaging program aimed at smoking cessation. *Journal of Medical Internet Research*, 14, e103.

### Week 5 – 2/12

N&H Chapter 4 – Internet-based Interventions for Health Behavior Change

N&H Chapter 8 – Computer-Tailored Interventions for Improving Health Behaviors

Glasgow, R. E., Christiansen, S. M., Kurz, D., King, D. K., Woolley, T., Faber, A. J., . . . Dickman, J. (2011). Engagement in a diabetes self-management website: usage patterns and generalizability of program use. *Journal of Medical Internet Research*, 13, e9.

Strecher, V. J., McClure, J. B., Alexander, G. L., Chakraborty, B., Nair, V. N., Konkell, J. M., . . . Pomerleau, O. F. (2008). Web-based smoking-cessation programs: results of a randomized trial. *American Journal of Preventive Medicine*, 34(5), 373-381.

#### Week 6 – 2/19

N&H Chapter 9 – Mobile Phones for Health Communication to Promote Behavior Change

N&H Chapter 10 – Text Messaging Interventions for Chronic Disease Management and Health Promotion

Free, C., Knight, R., Robertson, S., Whittaker, R., Edwards, P., Zhou, W., . . . Roberts, I. (2011). Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial. *Lancet*, 378(9785), 49-55. doi: 10.1016/s0140-6736(11)60701-0

Riley, W. T., Rivera, D. E., Atienza, A. A., Nilsen, W., Allison, S. M., & Mermelstein, R. (2011). Health behavior models in the age of mobile interventions: are our theories up to the task? *Translational behavioral medicine*, 1, 53-71.

#### Week 7 – 2/26

N&H Chapter 7 – Digital Games for Health Behavior Change: Research, Design, and Future Directions

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.

Baranowski, T., Baranowski, J., Thompson, D., Buday, R., Jago, R., Griffith, M. J., . . . Watson, K. B. (2011). Video game play, child diet, and physical activity behavior change: A randomized clinical trial. *American Journal of Preventive Medicine*, 40(1), 33-38.

Straker LM, Fenner AA, Howie EK, Feltz DL, Gray CM, Lu AS, *et al.* (2015). Efficient and effective change principles in active videogames. *Games for health journal*, 4,43-52.

#### Week 8 – 3/4

N&H Chapter 5 – Virtual Interactive Interventions for Reducing Risky Sex: Adaptations, Integrations, and Innovations

N&H Chapter 6 – Avatars for Health Behavior Change

LeRouge C, Dickhut K, Lisetti C, Sangameswaran S, & Malasanos T. (2015). Engaging adolescents in a computer-based weight management program: Avatars and virtual coaches could help. *Journal of the American Medical Informatics Association*, epub ahead of print.

Napolitano, M. A., Hayes, S., Russo, G., Muresu, D., Giordano, A., & Foster, G. D. (2013). Using avatars to model weight loss behaviors: participant attitudes and technology development. *Journal of Diabetes Science and Technology*, 7, 1057-1065.

#### Week 9 – 3/11

N&H Chapter 12 – Using Social Media to Enhance Health Communication Campaigns

Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., & Hoving, C. (2013). A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of Medical Internet Research*, 15, e85.

Neiger, B. L., Thackeray, R., Wagenen, S. A., Hanson, C. L., West, J. H., Barnes, M. D., & Fagen, M. C. (2012). Use of social media in health promotion: purposes, key performance indicators, and evaluation metrics. *Health Promotion Practice*, 13(2), 159-164.

Ramo, D. E., Thrul, J., Chavez, K., Delucchi, K. L., & Prochaska, J. J. (2015). Feasibility and quit rates of the tobacco status project: A Facebook smoking cessation intervention for young adults. *J Med Internet Res*, 17, e291.

#### Week 10 – 3/18

No class – spring break

#### Week 11 – 3/25

No class – Good Friday holiday

#### Week 12 – 4/1

N&H Chapter 13 – Dissemination and Implementation of eHealth Interventions

N&H Chapter 15 – Building an Evidence Base for eHealth Applications: Research Questions and Practice Implications

Glasgow, R. E. (2007). eHealth evaluation and dissemination research. *American Journal of Preventive Medicine*, 32(5, Suppl 1), S119-S126.

Riley, W. T., Glasgow, R. E., Etheredge, L., & Abernethy, A. P. (2013). Rapid, responsive, relevant (R3) research: a call for a rapid learning health research enterprise. *Clinical and Translational Medicine*, 2, 10.

#### Week 13 – 4/8

N&H Chapter 14 – Health Information Technology Policy Issues: Relevance and Implications for eHealth Applications

Goldman, J., & Hudson, Z. (2000). Virtually exposed: Privacy and e-Health. *Health Affairs*, 19(6),

140-148.

Lau, A. Y. S., Gabarron, E., Fernandez-Luque, L., & Armayones, M. (2012). Social media in health – what are the safety concerns for health consumers? *Health Information Management Journal*, 41(2), 30-35.

Section from: Turow, J. (2011). *The daily you: How the new advertising industry is defining your identity and your worth*: Yale University Press.

Week 14 – 4/15

*Readings TBD for guest speakers*

Week 15 – 4/22

Class presentations