H501—Introduction to Informatics for HCI

Indiana University School of Informatics and Computing

SPRING 2014

Course Info	3 Credit Hours | Room: IT 257 | Each Wednesday: 6:00pm to 8:40pm
Instructor	Dr. Anthony Faiola, Associate Professor, Director of HCI
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Website	http://soic.iupui.edu/people/anthony-faiola/
Office Hours	By appointment
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Website	http://soic.iupui.edu/people/debaleena-chattopadhyay/
Office Hours	By appointment
Class Schedule:	6:00—6:45 Flow paper presentations 6:45—7:15 Faiola/Guest: Mini lecture on ESM or other 7:15—7:30 Break 7:30—8:00 Chattopadhyay: Databases theory & application lecture 8:00—8:40 Teamwork on project, etc.
Prerequisites:	None
Note:	There may be minor changes to this syllabus throughout the semester due to unforeseen outcomes of the research project from week to week.

COURSE DESCRIPTION

Basic information representation and processing; searching and organization; evaluation and analysis of information. Internet-based information access tools; ethics and economics of information sharing.

EXTENDED COURSE DESCRIPTION

This course covers basic information representation and processing, namely organization and storage of data, data extraction and data analysis. The focus of this course is an introduction to the most central technical tools of informatics in the context of human-computer interaction (HCI).

Analyzing user sentiments from their tweets, evaluating popularity of a webpage using page-visits, identifying the most popular part of a virtual world in a MMORPG (massively multiplayer online role-playing game), constructing a data visualization model, or understanding feature preferences of an interactive software application using mouse-clicks (or taps)—what lies in common across all such HCI research is a large amount of data, and the ability to store, retrieve, extract and analyze them. The study of HCI is related to the interactions between human and technology.

HCI has become increasingly important as application software for desktops and mobile devices become pervasive in homes and workplaces, and designers thrive towards designing user-friendly applications. To design user-friendly technologies there is a need to understand how humans interact with technology. Empirical investigations in HCI aim to understand this interaction by conducting experiments, collecting data, and analyzing the stored data. Such investigations greatly depend on the rigor of data collection, data extraction and data analysis methods. This course offers an inventory of basic data-centric tools and techniques that can be used towards conducting any empirical studies in human-computer interaction.

TEXTBOOKS AND PAPERS

It is recommended that students get a personal copy of the required course text. Other course materials will be made available in the Resources folder of Oncourse or IUBox. Reading each week will focus on two categories of research theory and methods. Part One will be focused on flow theory, research, and methods and Part Two will be focused on database theory and methods/application. Throughout the semester the interrelationship between data use and management will be tied directly to the broader use and relevance within the field of HCI. This will be discussed both in its application to flow research, as well as other areas, as noted in the extended description above.

Part One: Flow Research Theory and Methods

Title: **Weekly reading:** PDFs place in IU-Box **[Online-No Cost]**

Title: **Experience Sampling Method**: Measuring the Quality of Everyday Life **[OPTIONAL]**
Author: Hektner, Schmidt, Mihaly Csikszentmihalyi
Publisher: SAGE Publications [Paperback] (Copyright: 2006, Edition: 1st)
Site: http://www.amazon.com/Experience-Sampling-Method-Measuring-Everyday/dp/1412925576

Part Two: Database Theory and Application

Topic: ***Databases with SQL:***

Title: Database Fundamentals **[Online-No Cost]**
Author: Sharma, N., Perniu, L., Chong, F., R. et al.
Copyright: 2010, Edition: 1st
Publisher: IBM Canada
Site: http://public.dhe.ibm.com/software/dw/db2/express-c/wiki/Database_fundamentals.pdf

Topic: ***Data Extraction and Introductory Statistics with R:***

Title: The Art of R Programming [E-*copy available at IUPUI library website*] **[Online-No Cost]**
Author: Matloff, N.
Copyright: 2011, Edition: 1st
Publisher: No Starch Press
Site: http://www.ulib.iupui.edu/node/9054 [*Use your IU network ID and password*]

Title: Discovering Statistics Using R **[Online-No Cost]**
Author: Field, A., Miles, J. & Field, Z.
Copyright: 2012, Edition: 1st
Publisher: SAGE Publications Ltd.

SOFTWARE

1. phpMyAdmin (a GUI to practice MySQL): **[Online-No Cost]**
   This is not a web programming course, and we will not cover client-server programming. phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the Web. Students will be able to access their database account on the school's server using their IU Network ID, and run queries. In a real-world scenario, either for a standalone application or a web application, one would write a program to automatically run database queries to collect/retrieve data (where the written program communicates with the phpMyadmin s/w). We will not cover that in this course. Students will learn how to formulate and directly run simple queries to store and retrieve data using the phpMyAdmin user interface.

2. RStudio, RCommander (or any equivalent GUI for the R programming language): **[Online-No Cost]**
   R is an integrated suite of software facilities for data manipulation, calculation and graphical display. A GUI (Graphical User Interface) enables analysts to access a selection of commonly used R commands using a simple interface that should be familiar to most computer users. It also serves the important role of helping users to implement R commands and develop their knowledge and expertise in using the command line –an important skill for those wishing to exploit the full power of the program. We will explore mainly two GUIs—Rstudio and RCommander. Students may also choose to use the R command line.

LEARNING OUTCOMES: Upon successful completion of this course, students will:

1. **Acquire an in-depth knowledge of:**
   a. Flow theory and its application to HCI and several domains of study, e.g., new media, gaming and IT.
   b. Flow empirical research and skills by applying the Experience Sampling Method (SM) method assigned to flow theory.
   c. How to apply large datasets derived from flow data collection techniques to support research hypotheses and/or questions.
2. **Enhance their ability to analyze critically and speak publically about:**
   a. The flow research done by other scholars.
   b. Your own research executed in class
   c. Data management issues and their relationship to HCI.
3. **Inform the design of HCI applications from user-data by storing and manipulating large amounts of data in a relational database. In that context, students will be able to:**
   a. Design a relational database, namely:
      i. Define attributes, tuples, relations, domains, schemas and keys in a relational database management system (RDBMS)
      ii. Apply relational model constraints and relational algebra operations
      iii. Model real-world objects into relational tables.
      iv. Identify problems and minimizing redundancy in an RDBMS.
      v. Identify data dependencies and incorporate them into the relational database design.
      vi. Refine relational tables to have the most optimal database design using normalization.
   b. Investigate specific research questions, such as the most popular feature of a mobile application, or the number of user errors in a text-entry field, design and apply SQL (and MySQL) queries. Specifically:
      i. Define a relational database schema in SQL.
      ii. Manipulate data with SQL.
      iii. Apply relation operations with SQL.
      iv. Generate SQL sub-queries.
   c. Extract data that matches certain assumptions, such as how many times user typed-in a number in a text-only field, or scrapping online data (webscrapping) that exists as blogs, news stories, etc. In that context, understand and implement the following concepts in R, namely:
      i. Data structures, e.g., data frames.
      ii. String manipulation using regular expressions.
      iii. Control statements and file handling.
   d. Explore the user-data captured using graphs in R.
   e. Understand the information out of the collected data; analyze it using basic statistics in R**.**
   f. Conduct basic statistical tests in R to make some recommendations about HCI design features, such as will images make webpages popular, or whether user uses the drop-down menu more than typing-in a keyword. For example, conduct
      i. Correlation
      ii. Comparing two means (*t*-test)

READINGS, CLASS DISCUSSIONS, and ASSIGNMENTS

As outlined above, each week students will have assigned readings from papers and course texts. These readings will include flow theory and research, as well as data management and two programming languages: SQL and R. Students with no (or little) programming background are encouraged to go through the supplementary materials (videos/ manuals/ articles) that will be posted in the Resources section of Oncourse. Four measures will be used to assess the learning competency from the weekly readings:

Part One—Class Presentation, Q&A, Discussion, and Highlights

1. Each week, one team (two students) will give a presentation on one flow research paper. Each team will present two times during the semester. Students must read the weekly assigned papers to grasp an in-depth understand of the content and relevance of the research in general and relative to HCI.
2. Assignment for Presenting Teams:
   a. The list of what team will speak each week is listed on the last page of this document. The papers are in zipped files in the Resources Folder in OnCourse.
   b. Each team will have 15 minutes to present their PowerPoint presentation.
   c. The presenting team MUST upload their PP in a folder called Weekly PPs before class begins. The PP file MUST be labeled with this configuration: WK3-Smith-Jones.ppt.
   d. The presentation will be in the form of a PowerPoint, maximum of 10 slides, including the cover slide.
   e. The presentation must begin at the start of class time - no later than 5 minutes after the hour.
   f. The presentation should focus on these 7 areas (Approximately 1 slide per point.):
      i. Title: Title of paper, its authors and publishing date.
      ii. Purpose: What is the purpose of study and the question and hypothesis being presented?
      iii. Background: What is the background/context of the study and how is flow theory being applied?
      iv. Findings: What are the findings? (Re-state the question/hypothesis and then the findings.)
      v. Impact: What are the long-term impact/effect of the findings for society, if any?
      vi. Implications: What are the implications of the research for the HCI community?
      vii. Conclusion: Main points of enlightenment that the presenters gained from reading the paper?
3. Assignment for None-Presenting Teams:
   a. Approximately 10 minutes will be allowed for Q&A after the presentation
   b. All NONE-presenting teams MUST **email** their question by NOON of each Wednesday to Faiola@iupui.edu. All late questions will receive a zero. If you are late in submitting your question, you are still responsibility to have your question by class time, otherwise you will receive another zero for class participation.
   c. The instructor will randomly select one team to give their question to the presenters and the class. However, all teams MUST be prepared to ask their question and to engage the class. All questions should help to give more insight into the focus and purpose of the research.
   d. A summary and highlights from the instructors will follow the Q&A
4. Team Evaluation of the Team Presentation: All teams (including the team giving the presentation) will grade the presentation using the following five parameters below. After the form is filled out, one of the team members will email the completed form to Dr. Faiola, at: Faiola@iupui.edu
5. The evaluation form is on page 17.

Part Two—Data Management

1. Weekly quizzes on the data readings will be given to assess learning and comprehension. Quizzes will be available on Oncourse one week prior to their assigned lesson under 'Tests and Surveys.' Students will have one minute per question. Immediately following the quiz, Oncourse will provide the score, indicating right and wrong answers. Quizzes will be due by 6 PM, the following day of the lecture.
2. A midterm examination (around 6th week of the class) will be given on the theory of databases and SQL. The exam will be open-book, with time limits, so students will need to have a mastery of the content, using the book primary as a reference text.
3. A final project involving data collection, data storage, data extraction and data analysis will be assigned to teams of students. At the conclusion of the project, students will present their findings in a class presentation summarizing how they have applied the tools and techniques of Informatics in an HCI research project.

COURSE GRADE BREAKDOWN

Part 1

- Flow paper presentations……..... 15%
- Flow presentation evaluation…….. 02%
- Flow presentation prepared question…….. 03%
- Data collection method…… 10%
- Class participation…… 05%

Part 2

- Quizzes…… 15%
- Mid-term exam…… 10%
- Final project (Final data analysis)…… 40%
  - Update presentation 10%
  - Final presentation 15%
  - Project report 15%

Total…… 100%

Grading Scale:

A+	97 –	100.00	Outstanding achievement, given at the instructor's discretion
A	93 –	96.99	Excellent achievement
A–	90 –	92.99	Very good work
B+	87 –	89.99	Good work
B	83 –	86.99	Marginal work
B–	80 –	82.99	Very marginal work
C+	77 –	79.99	Unacceptable work (*Elective or core course must be repeated*)
C	73 –	76.99	Unacceptable work (*Elective or core course must be repeated*)
C–	70 –	72.99	Unacceptable work (*Elective or core course must be repeated*)
D+	67 –	69.99	Unacceptable work (*Elective or core course must be repeated*)
D	63 –	66.99	Unacceptable work (*Elective or core course must be repeated*)
D–	60 –	62.99	Unacceptable work (*Elective or core course must be repeated*)
F	Below	60.00	Unacceptable work (*Elective or core course must be repeated*)

ATTENDANCE

1. **Basic Policy**
   a. All attendance and assignment deadline policies are in place to protect student educational rights, maintain grading equity, and promote team morale.
   b. Attendance shall be taken in every class. If you do not sign the attendance sheet while in class, you shall be marked absent. Signing the attendance sheet for another student is prohibited.
   c. Students are allowed a maximum of two absences. However, missing class does NOT excuse any student from weekly assignment deliverables. On the third absence, a student's final grade will be reduced by 10-points. And on the fourth absence an additional 10-points will be subtracted from the final grade, and so on.
   d. If a student uses up their two absences, then has a serious event (forcing them to miss class), they will still receive a 10-point reduction in their grade. For this reason, we strongly recommend that students do not miss any classes, unless for unusually serious and documented reasons.
2. **Administrative Withdrawal** [University Policy]
   a. A basic requirement of this course is that you will participate in all class meetings and conscientiously complete all required course activities and/or assignments. Keep in touch with the instructor if you are unable to attend, participate, or complete an assignment on time.
   b. If you miss more than half of the required activities within the first 25% of the course without contacting the instructor, you may be administratively withdrawn from this course by the instructor. For example: *This course meets once per week; thus if you miss more than two classes in the first four weeks*, you may be withdrawn by the instructor. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal will take place after the full refund period, and if you are administratively withdrawn from the course you will not be eligible for a tuition refund.
   c. If you have questions about the administrative withdrawal policy at any point during the semester, please contact the instructor. See campus policy in detail here: http://registrar.iupui.edu/withdrawal-policy.html

ASSIGNMENT DEADLINES

1. **Late Assignments**
   a. All project stages and assignments have due dates and times. All late assignments (even one minute) will receive a 10% reduction on that particular assignment. Assignments later than 24 hours will receive an additional 10% reduction. Assignments later than 48 hours will receive a zero.
2. **Team Responsibility**
   a. If a late assignment is due to the action of one team member, the entire team will reap the negative results. Only in extreme cases, unless tangible evidence suggests otherwise, will the late assignment policy be deferred. For this reason, it is imperative that team members establish a self-monitoring system that includes regular communication via email, text or phone. If a team has a team member who is not acting responsibly, the team may petition the instructor for a solution.
   b. If a student misses class on the day of their presentation, they will need to give a separate presentation without their team at another time within one week or receive a zero for that assignment.

CODE OF CONDUCT

1. All students should aspire to the highest standards of academic integrity. Using another student's work on an assignment, cheating on a test, not quoting or citing references correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program.
2. All students are responsible for reading, understanding, and applying the *Code of Student Rights, Responsibilities and Conduct* and in particular the section on academic misconduct. Refer to *The Code > Responsibilities > Academic Misconduct* at http://www.indiana.edu/~code/. All students must also successfully complete the Indiana University Department of Education "How to Recognize Plagiarism" Tutorial and Test. https://www.indiana.edu/~istd
3. You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else's words (e.g., following the *Publication Manual of the American Psychological Association*). To detect plagiarism instructors apply a range of methods, including Turnitin.com. http://www.ulib.iupui.edu/libinfo/turnitin

ACADEMIC MISCONDUCT

1. **Cheating**
   a. Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
2. A student must not:
   a. Use external assistance on any "in-class" or "take-home" examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
   b. Use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare work, without advanced authorization from the instructor to whom the work is being submitted.
   c. Use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
   d. Collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student's individual work.
   e. Use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
   f. Steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
   g. Submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom the work is being submitted.
   h. Without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.
3. **Plagiarism**
   a. Plagiarism is defined as presenting someone else's work, including the work of other students, as one's own.
   b. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered "common knowledge" may differ from course to course.
   c. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
   d. A student must give credit to the originality of others and acknowledge indebtedness whenever: 1) Directly quoting another person's actual words, whether oral or written; 2) Using another person's ideas, opinions, or theories; 3) Paraphrasing the words, ideas, opinions, or theories of others, whether oral or written; 4) Borrowing facts, statistics, or illustrative material; or 5) Offering materials assembled or collected by others in the form of projects or collections without acknowledgment
4. **Fabrication**
   a. A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.
5. **Interference**
   a. A student must not steal, change, destroy, or impede another student's work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student's grade or the evaluation of academic performance.
   b. Impeding another student's work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.
6. **Facilitating Academic Dishonesty**
   a. Any student who intentionally or knowingly helps (or attempts to helping) another student to commit an act of academic misconduct (as outlined in this syllabus) or who allows another student to use his or her work or resources to commit an act of misconduct will face immediate academic discipline.
7. **Violation of Course Rules/Policies/Instructions**
   a. Student are strongly encouraged to adhere to all course rules, policies, and instructions as outlined in the course syllabus, verbal/written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.

OTHER POLICIES

1. **IUPUI course policies:** A number of campus policies governing IUPUI courses may be found at the following link: http://registrar.iupui.edu/course_policies.html

2. **Classroom civility**:
   a. IUPUI nurtures and promotes "a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued" (IUPUI Strategic Initiative 9).
   b. IUPUI prohibits "discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or [veteran] status" (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers or other classroom visitors, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.
   c. The School of Informatics and Computing holds that to maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as: ringing cell phones, engagement in private conversations and other unrelated activities, either face-to-face or electronically. Texting, surfing the Internet, and posting to Facebook, Twitter, or other social media during class are generally not permitted.
   d. Students are strongly encouraged to switch their cell phones to vibrant during class time. If students receive what they believe to be an urgent call, they may quietly leave the classroom to address the matter.

3. **Bringing children to class:** To ensure an effective learning environment, children are not permitted to attend class with their parents, guardians, or childcare providers according to IUPUI policy.

4. **Disabilities Policy:** In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to reasonable accommodations. Please notify the instructor during the first week of class of accommodations needed for the course. Students requiring accommodations because of a disability must register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: aes@iupui.edu, Tel. 317 274-3241). Visit http://aes.iupui.edu for more information.

MISSION STATEMENT & STATEMENT OF VALUES

1. The Mission of IUPUI is to provide for its constituents excellence in: Teaching and Learning; Research, Scholarship, and Creative Activity; and Civic Engagement.
2. With each of these core activities characterized by: Collaboration within and across disciplines and with the community; A commitment to ensuring diversity; and Pursuit of best practices.
3. IUPUI's mission is derived from and aligned with the principal components—Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices—of Indiana University's Strategic Directions Charter.
4. IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community, both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.

COURSE SCHEDULE

WEEK 1 - Jan 15

Course Overview (Faiola)
- Syllabus Review
- Course Introduction
  - Flow theory
  - Research methodology
  - Introduction to informatics

Data Management (Chattopadhyay)

Topic: The role of data in human-computer interaction (HCI): Introduction to database systems
- Readings due:
  - Coronel, C., Morris, S. & Rob, P. (2011) *Database Systems: Design, Implementation, and Management*. Course Technology.
    - Chapter 1. Database systems. (20 pages)
- Homework due:
  - Week 1 Quiz [KS, CT] (*Due by Saturday, 1/18/2014, 5 PM*)

WEEK 2 - Jan 22

HCI Theory - *Flow*
- Presentations
  - Team 1 & 2 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: Introduction to The Experience Sampling Method
  - Flow Project Discussion: Forming the research question or questions

Data Management

Topic: *Representing the relations in user-data: The Relational Data Model*
- Readings due:
  - Sharma, N., Perniu, L., Chong, F., R. et al. (2012) *Database Fundamentals*. IBM Canada.
    - Chapter 2. The relational data model, exclude section 2.5. (20 pages)
- Homework due:
  - Week 2 Quiz [KS, CT]

WEEK 3 - Jan 29

HCI Theory - *Flow*
- Presentations
  - Team 3 & 4 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: What Can We Learn From ESM?
  - Flow Project Discussion: Forming the research hypothesis or hypotheses

Data Management

Topic: *Finding dependencies in user-data: Functional Dependency and Normalization*
- Readings due:
  - Sharma, N., Perniu, L., Chong, F., R. et al. (2012) *Database Fundamentals*. IBM Canada.
    - Chapter 4. Relational database design, up to pg. 103 (15 pages)
- Homework due:
  - Week 3 Quiz [KS, CT]

WEEK 4 - Feb 5

HCI Theory - *Flow*

- Presentations
  - Team 5 & 6 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: How Trustworthy Are Subjective Self-Reports?
  - Flow Project Discussion: ESM data collection techniques
    - Details for personal data collection
    - How to use ESM data form and codes

Data Management

Topic: *Querying user-data with SQL; Accessing the MySQL database*

- Readings due:
  - Sharma, N., Perniu, L., Chong, F., R. et al. (2012) *Database Fundamentals.* IBM Canada.
    - Chapter 5. Introduction to SQL (25 pages)
- Homework due:
  - Week 4 Quiz [KS, CT]

WEEK 5 - Feb 12

HCI Theory - *Flow*

- Presentations
  - Team 7 & 8 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: Schedules for Data Collection
  - Flow Project Discussion: Data collection follow-up & feedback from students on experience

Data Management

Topic: *Review databases; Introduction and installation of R (R Commander/and R Studio)*

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 3. The R Environment, pg. 62 – 81 (20 pages)
- *Additional reference*:
  - Matloff, N. (2011). *The Art of R Programming*, No Starch Press.
    - Appendix A. Installing R
- Homework due:
  - R installation[KS, CT]
  - Practice exam [KS]

WEEK 6 - Feb 19

HCI Theory - *Flow*

- Presentations
  - Team 9 & 10 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research (None this week due to Midterm and discussion of final project)

Data Management

Topic: *Midterm examination* [KS, CT, EC]; ***Final project discussion***

- Readings due:
  - Final project document
- Homework due: - None

WEEK 7 - Feb 26

HCI Theory - *Flow*

- Presentations
  - Team 11 & 12 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: Measuring Flow
  - Flow Project Discussion: Types of ESM data analyses

Data Management

Topic: *Processing and extracting information from user-data with R: data input/output.*

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 3: pg. 81 – 92 (12 pages)
  - Matloff, N. (2011). *The Art of R Programming*, No Starch Press.
    - Chapter 5: sections 1, 2 and 3 (10 pages)
- Homework due:
  - Week 7 Quiz [KS, CT]
  - Final project update in class [EC]

WEEK 8 - March 5

HCI Theory - *Flow*

- Presentations
  - Team 1 & 2 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: ESM research case study #1
  - Flow Project Discussion: Work with students on final project

Data Management

Topic: *Processing and extracting information from user-data with R: entering data with R Commander, regular expressions and control structures.*

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 3: pg. 92 – 115 (24 pages)
  - Matloff, N. (2011). *The Art of R Programming*, No Starch Press.
    - Chapter 7: section 1 (5 pages)
    - Chapter 11: sections 1 & 2 (6 pages)
- *Additional reference*:
  - Matloff, N. (2011). *The Art of R Programming*, No Starch Press.
    - Chapter 10: sections 1 & 2
- Homework due:
  - Week 8 Quiz [KS, CT]
  - Final project update in class [EC]

WEEK 9 - March 12

HCI Theory - *Flow*

- Presentations
  - Team 3 & 4 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: ESM research case study #2
  - Flow Project Discussion: Work with students on final project

Data Management

Topic: *What information can we learn from the data? Introductory statistics.*

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 1 (30 pages)
- Homework due:
  - Week 9 Quiz [KS, CT]
  - Final project update in class [EC]

WEEK 10 – SPRING BREAK - March 19

HCI Theory – *Flow (NO Assignment – Take a break)* / Data Management – (No HW due)

WEEK 11 - March 26

HCI Theory - *Flow*

- Presentations
  - Team 5 & 6 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: ESM research case study #3
  - Flow Project Discussion: Work with students on final project

Data Management

Topic: *What information can we learn from the data? Significance testing*.

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 2 (27 pages)
- Homework due:
  - Week 11 Quiz [KS, CT]
  - Final project update in class [EC]

WEEK 12 - April 2

HCI Theory - *Flow*

- Presentations
  - Team 7 & 8 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Research Method Lecture: ESM research case study #4
  - Flow Project Discussion: Work with students on final project

Data Management

Topic: *What information can we learn from the data? Exploring data with graphs*.

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 4. Exploring data with Graphs (46 pages)
- Homework due:

- Week 12 Quiz [KS, CT]
- Final project update in class [EC]

WEEK 13 - April 9

HCI Theory - *Flow*

- Presentations
  - Team 9 & 10 Presenters of Flow paper.
  - Student follow-up questions with Instructor's summary
- Flow Research
  - Flow Project Discussion: Work with students on final project

Data Management

Topic: *What information can we learn from the data? Understanding correlation.*

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 6. Correlation (38 pages)
- Homework due:
  - Week 13 Quiz [KS, CT]

WEEK 14 - April 16

HCI Theory - *Flow*

- Team 11 & 12 Presenters of Flow paper.
- Student follow-up questions with Instructor's summary

- Flow Research
  - Flow Project Discussion: Work with students on final project

Data Management

Topic: *What information can we learn from the data? Comparing two means.*

- Readings due:
  - Field, A., Miles, J. & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications Ltd.
    - Chapter 9. Comparing two means (36 pages)
- Homework due:
  - Week 14 Quiz [KS, CT]
  - Final project update in class [EC]

WEEK 15 - April 23

Free week to prepare for final project report and presentation
Class time for working on final project report and presentation

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WEEK 16 - April 30

Final Project Report and Presentation due at class time

WEEKLY SCHEDULE

Wks	Readings	Homework Due	In-class activity	Project Stage Due
1 Jan 15	Database systems	Week1 Quiz	1. Flow paper presentation 2. Intro lecture on Informatics in HCI	
2 Jan 22	The relational data model	Week2 Quiz	1. Flow paper presentation 2. Flow Lectures: Introduction to The Experience Sampling Method and Forming the research question or questions 3. In-class practice of relational algebra	
3 Jan 29	Relational database design	Week3 Quiz	1. Flow paper presentation 2. Flow Lectures: What Can We Learn From ESM? And Forming the research hypothesis or hypotheses 3. In-class practice of normalization	
4 Feb 5	Introducti on to SQL	Week4 Quiz	1. Flow paper presentation 2. Flow Lectures: ESM data collection techniques and How to use ESM data form and codes 3. In-class practice of SQL queries	
5 Feb 12	Getting started with R	Practice Exam	1. Flow paper presentation 2. Flow Lectures: Schedules for Data Collection and Data collection follow-up / students on experience 3. Installing R 4. Database review	First week of ESM data collected due
6 Feb 19	Final project document		1. **Midterm Examination** (on databases) 2. **No Flow lectures this week.** 3. Project discussion	Second week of ESM data collected due
7 Feb 26	Data input/outp ut	Week 7 Quiz	1. Flow paper presentation 2. Flow Lectures: Measuring Flow / Types of data analyses 3. Informatics lecture 4. In-class practice of R	
8 March 5	R Program. Structures; Input/ Output	Week 8 Quiz	1. Flow paper presentation 2. Flow Lectures: ESM research case study #1 and Work with students on final project 3. In-class practice of R 4. Project Discussion	
9 March 12	Introductor y Statistics	Week 9 Quiz	1. Flow paper presentation 2. Flow Lectures: ESM research case study #2 and Work with students on final project 3. In-class practice of R 4. Project Discussion	
10 March 19	**Spring Break**			
11 March 26	Statistics: Significan ce testing	Week 11 Quiz	1. Flow paper presentation 2. Flow Lectures: ESM research case study #3 and Work with students on final project 3. In-class practice of Statistics 4. Project Discussion	
12 April 2	Statistics: Exploring data with graphs	Week 12 Quiz	1. Flow paper presentation 2. Flow Lectures: ESM research case study #4 and Work with students on final project 3. In-class practice of Statistics 4. Project Discussion	
13 April 9	Statistics: Correlatio n	Week 13 Quiz	1. Flow paper presentation 2. Work with students on final project 3. In-class practice of Statistics 4. Project Discussion	
14 April 16	Statistics: Comparin g two means	Week 14 Quiz	1. Flow paper presentation 2. Work with students on final project 3. In-class practice of Statistics 4. Project Discussion	
15 April 23	**Free week for preparing for final project report and presentations Class time for review and help.**			
16 April 30	**Final project presentations**			

Flow Reading Schedule

(Including paper titles)

- Week2-Jan22 [TEAM 1&2]
  - Flow Theory and Research.pdf
  - Optimal Experience.pdf
- Week3-Jan29 [TEAM 3&4]
  - 2003 The Role of Flow Experience in Cyber-Game Addiction.pdf
  - 2005 Digital game-based learning- Towards an experiential gaming model.pdf
- Week4-Feb5 [TEAM 5&6]
  - 2004 Flow and Media Enjoyment.pdf
  - 2004 Flow Experiences and Image making.pdf
- Week5-Feb12 [TEAM 7&8]
  - 2004 Flow experiences in information technology use.pdf
  - 2004 The Flow Model of Intrinsic Moti...Cultural and Personal Moderators.pdf
- Week6-Feb19 [TEAM 9&10]
  - 2005 GameFlow-model for evaluating player enjoyment in games.pdf
  - 2008 Flow experience among info & com technology users.pdf
- Week7-Feb26 [TEAM 11&12]
  - 2006 Online learner's 'flow experience- an empirical study.pdf
  - 2006 Psychological motives and online games addiction.pdf
- Week8-Mar5 [TEAM 1&2]
  - 2007 Flow experiences of children in an interactive social game environment.pdf
  - 2011 Skills-demands compatibility as...nce in an inductive reasoning task.pdf
- Week9-Mar12 [TEAM 3&4]
  - 2007 A Cross-Cultural Study of Flow Experience.pdf
  - 2007 Pervasive Game Flow.pdf
- Week10-Mar19-SpBreak
- Week11-Mar26 [TEAM 5&6]
  - 2008 Toward an Understanding of Flow in Video Games.pdf
  - 2009 Communicative Behaviors and Flow Experience in Tabletop Gaming.pdf
- Week12-Apr2 - PROJECT PRESENTATIONS - No papers
- Week13-Apr9 [TEAM 7&8]
  - 2011 The concept of flow in collaborative game-based learning.pdf
  - 2012 Neural contributions to flow experience during video game playing.pdf
- Week14-Apr16 [TEAM 9&10]
  - 2005 Flow in computer mediated environments.pdf
  - 2013 Understanding the effect of flow on user adoption of mobile games.pdf
- Week15-Apr23 [TEAM 11&12]
  - 2007 Flow experience of MUD Gamers from the USA.pdf
  - 2012 Correlating the effects of flow and telepresence in virtual worlds.pdf
- Week16-Apr30 - PROJECT PRESENTATIONS - No papers

	Student Evaluation of the Weekly Presentation	
	Team # _____ Last Name of Team Members: _____ & _____	Use #s ONLY
1	How well did the team prepare for their presentation, e.g., did it appear that they: had mastery of the content, had practiced their presentation, and were well coordinated?	
2	Did they make all the key points clear, i.e., was their speaking concise and to the point?	
3	Was the purpose and final findings of the research made clear relative to the question/hypothesis?	
4	Did they help connect the relevance of the research to society and its implications for HCI?	
5	How well did the presenters respond to the class questions/discussion during the Q&A time?	
	(Please do the math) **Mean Team Score**	
	Each team (not individual) will provide a score for each of the 5 parameters above, with a mean score at the bottom. Use numbers only, not letter grades. The Score metric will be the same as that used for this course. The **Grade Percentage is as follows:** A+ 97—100 B 83—86.99 A 93—96.99 B- 80—82.99 A- 90—92.99 C+ 77—79.99 B+ 87—89.99 C 73—76.99	