Information Sciences and Technology Department

Course Syllabus: AIT-622-001 - Fall 2021
Big Data Needs Analysis
(Corresponds to Healthcare Information Systems Analysis / Design: HAP-622)
Instructor: Professor Hadi Rezazad

GMU CPVID Reminder: All faculty, staff, and students on campus must wear appropriate masks indoors, including classrooms and laboratories, regardless of vaccination status. Additionally, all faculty, staff, and students must complete the Mason COVID Health check every day.

Catalog Description:
Explores requirements, organization, and management of Big Data projects, including architecture of data analytics systems, roles of Analysts and Project Managers, methods of research, and data governance, security, privacy and legal issues. Reviews case studies from social media, government and industry, Big Data definitions and concepts, and communication requirements. Principles are applied by students using case studies and individual assignments.

This course is currently one of the core requirements for the MS in Applied Information Technology.

Prerequisite(s): Admission to a graduate program in Applied IT or Health Informatics, or permission of the instructor.

The course includes but is not limited to the following topics, and emphasizes both the business and technical aspects of Data Analytics projects:

- Architecture of data analytics systems
- Role of the Data Scientist and the Data Analytics Project Manager
- Tools for conducting data analytics research
- Characteristics and representations of data
- Public Big Data resources
- Big Data use cases in social media, government, and industry
- Principles of statistical analysis
- Tools for exploring data
- Data visualization concepts and methods
- Machine learning and predictive analytics
- Data governance, security, curation, privacy, ethics, and legal issues

AIT-622 emphasizes the requirements, design, organization, and management of large data analytics ("Big Data") projects. It will include review of case studies, definitions and concepts, and communication requirements.
**Required Course Material:**
There is no required textbook for this course section. There will be required Web-based readings and tutorials, along with recommended resources. These will be listed on the course Blackboard site's general resource links and individual assignment links.

**Course dates:** August 25 to December 8

**Location:** This is a hybrid course; it meets on campus during alternate weeks and online during the other weeks. Refer to Course Announcements and the Course Schedule Updates for details. It is important to note that the location of classes may change throughout the semester (i.e., in-person or virtual); in such an event, as much as possible, the change will be announced several days in advance of the class date.

**Meeting day & time:** Wednesdays, 4:30 pm to 7:10 pm

**Blackboard:** mymason.gmu.edu All assignments, class announcements, schedules, files will be through Blackboard.

**Professor's Email:** hrezazad@gmu.edu - Any electronic correspondences with the instructor will be through the GMU email accounts only. When contacting the professor please use the prefix AIT622 in the Subject line of your email, For example: Subject: AIT622: Question about Assignment #1. Also, make sure you include your name at the end of the email message.

**Instructor’ Office location:** Research Hall 1, Room 419

**Instructor Office Hours:** By Appointment

**Graduate Teaching Assistant (GTA):** Zinat Ara – Zara@GMU.edu

**GTA Office hours:** By Appointment

**Grading Policy**
Student grades will be determined based on class participation, general assignments & exercises, case studies and reports, and on the final project/evaluation:

**Grading:** The graded items will account for the following percent of the final course grade:

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
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<tbody>
<tr>
<td>General assignments &amp; exercises</td>
<td>40%</td>
</tr>
<tr>
<td>Case studies and reports</td>
<td>25%</td>
</tr>
<tr>
<td>Final Project</td>
<td>30%</td>
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<tr>
<td>Class participation</td>
<td>5%</td>
</tr>
</tbody>
</table>
The grading scale for this course is:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>97 – 100</td>
<td>A+</td>
<td>Passing</td>
</tr>
<tr>
<td>93 – 96</td>
<td>A</td>
<td>Passing</td>
</tr>
<tr>
<td>90 – 92</td>
<td>A-</td>
<td>Passing</td>
</tr>
<tr>
<td>87 – 89</td>
<td>B+</td>
<td>Passing</td>
</tr>
<tr>
<td>83 – 86</td>
<td>B</td>
<td>Passing</td>
</tr>
<tr>
<td>80 – 82</td>
<td>B-</td>
<td>Passing</td>
</tr>
<tr>
<td>70 – 79</td>
<td>C</td>
<td>Passing</td>
</tr>
<tr>
<td>0 – 69</td>
<td>F</td>
<td>Failing</td>
</tr>
</tbody>
</table>

**Honor Code**

All work performed in this course will be subject to GMU's Honor Code. Students are expected to do their own work in the course unless a group project is approved by the instructor. In papers and project reports, students are expected to write in their own words, rather than cutting-and-pasting from sources found on the Internet. The goal of assignments is to demonstrate what you have learned, not what you can google. When you do use text or graphical material from books, articles, and the Web, enclose the material in quotes and provide a complete and proper reference. If a paragraph is used then it should be indented in the text (both left and right margins). In-text citation can use the [Author, Year] format or the Numerical [1] format which must refer to the source in the References section of your assignment. Use APA for guidance on citation style, usage, etc. Proper citations always include: Author(s), Title, Publication Date, Publisher, and URL (if from the Web, along with Last Accessed Date). BlackBoard's SafeAssign service will be used to review selected student assignments.

**NOTES:**

- **Wikipedia is not a primary reference.** Use it for initial discover, but use and cite primary references (which Wikipedia itself might use).
- If you need assistance with writing an assignment, you can get assistance here: [http://writingcenter.gmu.edu](http://writingcenter.gmu.edu)
- One of the most important parts of your assignment that will be evaluated is the References section!

Any programming/coding assignments must adhere to the CS Honor Code.

**Assignments**

**Submission format:**

Unless otherwise specified, all assignments must be submitted as **PDF files or MS-Word files.** Upload all assignments to Blackboard. Use the following filename format: Lastname-
There are several online Computer Labs available for general use by students. For more information go to the web site https://its.gmu.edu/service/citrix-virtual-lab/. Otherwise, students are expected to use their personal laptops for course work.

**Class Participation:** Your participation in class sessions is important to the exchange of ideas and the exposure to other perspectives. Contribute *actively* to the discussions, *participate* in any online discussion topics posted on Blackboard. *Some online discussion topics may be selected for grading.*

**Other Notes:**

- There will be reading assignments *along with the assumption that you have actually read them.*
- Lectures will augment reading material; lecture material will be asked about on assignments and on final evaluation.
- Lecture slides from instructor's material will be posted on Blackboard.
- Personal Safety and Security: The Mason Alert system provides emergency information of various sorts. Students can sign up for it by visiting the website [https://alert.gmu.edu](https://alert.gmu.edu). Students are also reminded that an emergency poster exists in each classroom explaining what to do in the event of crises and that further information about emergency procedures exists on [http://www.gmu.edu/service/cert](http://www.gmu.edu/service/cert).

**Campus Services:** A number of services are available to students:

**Writing Center:** A114 Robinson Hall; (703) 993-1200; http://writingcenter.gmu.edu

**Office of Disability Services:** If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS [http://ods.gmu.edu](http://ods.gmu.edu) and be arranged before any accommodation is needed.

**Counseling and Psychological Services (CAPS):** (703) 993-2380; [http://caps.gmu.edu](http://caps.gmu.edu).

University Policy: The University Catalog, [http://catalog.gmu.edu](http://catalog.gmu.edu), is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at [http://universitypolicy.gmu.edu](http://universitypolicy.gmu.edu). All members of the university community are responsible for knowing and following the established policies.

**Respect for Diversity** - University Diversity Statement: