During the semester, you will submit research papers examining an issue concerned with decision support (i.e., DSS, GSS or ESS/EIS), and expert systems/AI techniques. Generally, research examines the generalizability of concepts and attempts to identify exceptions or uncover new relationships (very little is done to discredit the works of others). It is often conducted in the context of problem resolution. Because our discipline resides among the social sciences, nothing is absolute. Hence, research will always be an ongoing process. Emphasis should be placed on critical thinking.

The objectives of the research papers are to better familiarize you with the current managerial and behavior issues confronting managers and organizations, and to extend your foundations of the topic areas. Knowledge gained through these assignments will benefit your careers in the long run; you cannot be practical without understanding the underlying concepts and/or theories.

The topic that you select should explore an aspect or issue of the topic area. Often, issues will be new and/or controversial with no one accepted approach to their resolution, and driven by a problem. Therefore, the topic you select should examine, explore or investigate, or promote a need for further study into a particular area.

**Topics**

Often, topics involving DSS and expert systems/AI are viewed initially as technical explorations (i.e., how technology can be applied to supporting decision making). However, studies examining the application of technology to these systems comprise a very small portion of the research devoted to these areas. Most research attempts to provide greater understanding of the human and organization behavior issues surrounding their use. For example, among the several studies in DSS, many have examined the effectiveness of DSS in decision making. The conclusions of these studies have been mixed, resulting with no overwhelming endorsement of DSS use. Other studies have examined information presentation techniques (i.e., graphical versus textual, color), and decision making techniques (e.g., compensatory versus noncompensatory decision making). Technology and its availability have never been major issues.

The same holds true with expert systems and AI techniques. Most research has concentrated on behavioral and organizational issues, and innovative applications of expert systems. These include (but not limited to) knowledge acquisition and representation, liability problems, user interface, and knowledge engineering.
techniques. An excellent example of innovative use is XCON, DEC’s highly successful (and publicized) application of an expert system in manufacturing.

A suggested approach to finding a topic involves reflecting upon the material in the textbook and thinking about its applicability to situations you have experienced or are aware of. In some cases, your experience may have taken a different approach or been resolved differently. Thus, a conflict between theory/concepts and practice is evident, and necessitates further investigation (i.e., why does this difference exist?). Begin your study by noting the differences and similarities between your experience and what you have read. In most cases, the differences can be attributed to situational factors. Frame your need for further investigation (research) in a **problem statement** and note its significance. For example, a problem statement can be posed as follows:

>The purpose of joint application development (JAD) has been to design information system applications that more closely embody user requirements by bringing together users, management and IS developers in a team. However, the team environment presents many problems in the form of dysfunctional behavior, including dominance of the team by an individual or individuals, conformity and groupthink. Such behavior tends to undermine the benefits of group interactions, and obstruct productivity. This study examines how group support systems (GSS) can be applied in JAD as of means to enhance communication by suppressing dysfunctional behavior. The integration of GSS into JAD may lead to system requirements that more accurately reflect user needs, and therefore more usable systems.

The clear problem statement guides all research activities since everything must be tied to resolving it. Next, examine the published works (research) of others to learn more about the underlying factors, and gain greater insights into the problem. Develop a solution based upon your readings and discoveries.

**Note.** Please keep in mind your paper should **NOT** be a tutorial explaining the concepts of DSS or expert systems, or how these systems were applied to specific instances (not be confused with innovative application).

**Sources**

Research publications (articles) may be found in several academic journals. Using a manual or computer-aided keyword search will help locate them. Computer-based search methods offer the convenience of scanning a wide range of publications in a very timely manner. They can be accessed from any computer linked to the University’s library.

The following list contains the names of recommended journals. Although this is not an exhaustive list, it reflects several major sources of IS publications.
Academy of Management Journal
Academy of Management Review
ACM Transactions\(^1\)
Communications of the ACM
Computer (an IEEE publication)
Decision Sciences
Decision Support Systems
Expert Systems
Expert Systems with Applications
Harvard Business Review
IBM Systems Journal
IEEE Computer
IEEE Expert
IEEE Software
IEEE Transactions\(^2\)
Information and Management
Information Systems Management
Information Systems Research
Interfaces (TIMS publication)
International Journal of Man-Machine Studies
Journal of Business Strategy
Journal of Computer Information Systems
Journal of Management Information Systems

\(^1\) All ACM Transaction publication are considered good to excellent journals.

\(^2\) All IEEE Transaction publication are considered good to excellent journals.
Many of these journals may be accessed online through the CSUS and UC Davis libraries.

Structure

The following guidelines have been assembled to assist you:

- Length. The length of your paper should be within the range of eight to thirteen typewritten, double-spaced pages. This includes one-inch margins (top, bottom, right, left), page numbers (bottom, centers), a twelve-point font (either proportional or nonproportional), and appropriate headings and titles. Not included in this limited are reference pages, the cover page, tables, figures or other material. Material not directly supporting a point, but conveys important and necessary information belongs in an appendix.

- Structure. The organization of your paper is important. Please adhere to the following structure:

<table>
<thead>
<tr>
<th>Abstract</th>
<th>Present a brief (200 word maximum) and concise overview of your paper. The abstract provides the reader with a general idea of your paper’s focus without having to read it in its entirety. Follow the journal articles for examples.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note.</td>
<td>The abstract should be written after the paper has been completed.</td>
</tr>
<tr>
<td><strong>Introduction</strong></td>
<td>Introduce your topic, define the objective of your paper, discuss the significance of your study (i.e., reason for its importance, its contribution to the body of knowledge, how it differs from previous studies, etc.), identify the problem (i.e., issue) and suggest who would benefit from your conclusions and how they would benefit. Be sure to clearly identify the problem (i.e., what the results and conclusions of your paper will address) through a problem statement. Remember, research is not conducted for research sake, but to discover knowledge and solutions to problems.</td>
</tr>
<tr>
<td><strong>Literature Review</strong></td>
<td>Present and discuss (in your own words) prior studies that support your paper.</td>
</tr>
<tr>
<td><strong>Body of Discussion</strong></td>
<td>Present your topic. When applicable discuss your methodology.</td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td>Present the conclusions that can be drawn from your study. They should support the paper’s objective, and address the problem discussed in the introduction.</td>
</tr>
<tr>
<td><strong>Summary</strong></td>
<td>Summarize your paper.</td>
</tr>
<tr>
<td><strong>References</strong></td>
<td>List alphabetically the authors of the studies you have referenced throughout your paper. Follow the accepted format styles (i.e., single spaced, double spaced between references).</td>
</tr>
</tbody>
</table>

**Note.** In academia, failing to cite the work of others constitutes plagiarism.

- Include on your cover page the title of your paper, your name, and the current date. Do NOT bind (in any way, shape or form) your paper; a staple through the upper left corner will suffice!

- References. Your paper should reference at least (minimum) 3 major published articles. Reliance on trade and practitioner publications is not considered good practice since many of their articles tend to be anecdotal and are founded on neither theory nor principles. Please consult the above list of recommended publications.

Reference entries should include the author name(s) (in the case of multiple authors, the first author is listed last name first, and each subsequent author first name first), the title of the article, and the publication’s name, volume and issue numbers, the year and page numbers.

Example.

- Diagrams and charts. Hand-drawn diagrams and charts are not acceptable; they should be computer generated. Place these items in figures and on separate pages (one figure or table per page), and after the page of its first reference. Be sure to descriptively label them in their captions (e.g., Figure 1. Gorry and Scott Morton’s framework for management information systems, Table 1. Validation results of AI techniques).

**Writing Guidelines**

The following guidelines have been assembled to help you with your paper.

- **Writing style.** Sentences should be structured in proper **standard written English**. Do NOT use casual or conversational tone (i.e. first person). This is supposed to be a business report.

- **Spelling.** Be sure to use the spell check feature of your word processing package to find and correct spelling errors.

- **Proofing.** Take the time to proof read your paper before submitting it.