

## **Teaching AI in business schools: A pathway to future-ready graduates**

Eric Kennedy, PhD  
Southeastern Oklahoma State University

### **ABSTRACT**

The manuscript outlines the development of an undergraduate course titled “Generative Artificial Intelligence for Business,” aimed at equipping students with the knowledge and skills necessary to leverage generative AI technologies in various business contexts. The course framework covers fundamental concepts of generative AI, including technologies like Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs), and emphasizes practical applications in marketing, product design, and customer engagement. The curriculum integrates ethical considerations, addressing issues such as data privacy and algorithmic bias, to prepare students for responsible use of AI in business. The course structure includes lectures, hands-on labs, case studies, and a capstone project, fostering a blend of theoretical understanding and practical experience. Faculty training and institutional support are highlighted as crucial for effective course delivery, ensuring that instructors are equipped with the latest knowledge in AI technologies. The document also discusses challenges such as keeping course content up-to-date with rapid technological advancements and ensuring accessibility and inclusivity for all students. The proposed course aims to produce graduates who are not only technically proficient but also capable of critical thinking and ethical decision-making in the application of generative AI in business settings.

Keywords: Artificial intelligence, business, future-ready, technology, critical thinking

## INTRODUCTION

In recent years, the landscape of business and technology has been dramatically reshaped by the introduction and adoption of artificial intelligence (AI). Among the various forms of AI, generative technologies have emerged as particularly transformative, offering capabilities that extend beyond traditional automation and analytics. Generative AI (GenAI), which includes models such as Generative Adversarial Networks (GANs) and advanced natural language processing (NLP) systems, enables machines to produce new content, ranging from realistic images and music to human-like text (Bengio et al., 2013; Goodfellow et al., 2014).

The implications of these technologies for the business world are profound. For instance, companies are increasingly using generative AI to personalize marketing campaigns, optimize product designs, and create innovative customer experiences (Brown et al., 2020). A notable example is the use of AI-generated content in advertising, where brands can swiftly produce tailored advertisements that resonate with specific target segments, significantly enhancing engagement and conversion rates. Furthermore, in product development, companies like Nike and Adidas are exploring generative design techniques to create new product forms that were previously inconceivable.

Despite these advancements, a critical gap exists in the educational preparedness of the upcoming workforce. While many business students are introduced to traditional business concepts and basic analytical tools, few are exposed to the sophisticated AI technologies that are increasingly shaping strategic decision-making in modern enterprises. This gap presents a challenge and an opportunity: business schools must evolve their curricula to include training in GenAI to prepare graduates to operate these technologies while driving innovation and competitive advantage.

The need for such education is underscored by a growing demand from employers for professionals who possess both a deep understanding of business principles and the technical acumen to navigate and leverage new technologies. As noted by the World Economic Forum (2020), AI and machine learning are among the top emerging job roles, with skills in these areas becoming crucial across industries. This trend signals a shift in the job market where knowledge of generative AI could soon become a key differentiator for job candidates.

In response to this evolving landscape, this paper proposes the development of an undergraduate course titled “Generative Artificial Intelligence for Business.” The course aims to bridge the current educational gap by providing students with the knowledge and skills necessary to understand and apply generative AI technologies in various business contexts. By integrating technical understanding with business strategy, the course seeks to prepare students for future roles as innovators and leaders in a technology-driven marketplace.

This initiative is not just about imparting technical skills; it is about fostering a new generation of business professionals who can think critically about the ethical implications of AI, communicate complex technical ideas to non-specialist stakeholders, and make informed decisions that consider both the potentials and the limitations of generative technologies. As such, the course aligns with broader educational goals of developing holistic, adaptable, and ethically aware leaders capable of navigating the complexities of the digital age.

Despite the growing relevance of generative AI in business, there is a noticeable gap in undergraduate business education that addresses the integration of these technologies. This paper aims to propose a framework for developing an undergraduate course on “Generative Artificial Intelligence for Business.” The course is designed to equip future business leaders with the

necessary skills to understand, implement, and leverage generative AI technologies in their professional roles.

This study addresses the following research questions: What are the key components and technologies of generative AI relevant to business? How can these components be effectively taught within an undergraduate business curriculum? What are the ethical and practical considerations when teaching generative AI in a business context? The objectives of this paper are to develop a comprehensive framework for course design, including curriculum, teaching methodologies, and assessment strategies; provide guidelines for faculty training and resource allocation necessary for effective course delivery; discuss the challenges and ethical considerations associated with integrating generative AI into business education. By addressing these objectives, this paper contributes to the academic discourse on curriculum development in business education and prepares future graduates for the evolving technological landscape in business.

## LITERATURE REVIEW

Generative AI has seen significant advancements since the introduction of foundational models like Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs). GANs, introduced by Goodfellow et al. (2014), consist of two neural networks—the generator and the discriminator—that contest with each other in a game-like scenario. This architecture enables the generation of data that closely resembles the training set, making GANs particularly effective for creating high-quality images and synthetic data. VAEs, on the other hand, focus on learning a probabilistic mapping from data to a latent space, enabling the generation of new data points by sampling from this space (Kingma & Welling, 2013).

The business applications of generative AI are diverse and rapidly expanding. In marketing, generative AI is utilized to create personalized content, such as product recommendations, targeted advertisements, and dynamic website interfaces. For example, companies like Netflix and Amazon employ generative algorithms to recommend products and content to users, enhancing user engagement and satisfaction (Jannach et al., 2016).

Despite the benefits, generative AI also poses significant challenges, particularly in ethical and legal domains. Issues such as data privacy, intellectual property rights, and the potential for misuse of AI-generated content (e.g., deepfakes) are major concerns (Floridi et al., 2018). For instance, the ability of GANs to create hyper-realistic images has raised alarms about the spread of misinformation and the difficulty of distinguishing between real and synthetic media. Additionally, the deployment of generative AI in sensitive areas, such as healthcare and finance, necessitates rigorous standards and ethical guidelines to prevent bias and ensure fairness (Kietzmann et al., 2018).

The integration of technology in business education is not a new phenomenon; however, the inclusion of advanced AI topics remains limited. Traditional curricula often focus on foundational business subjects, with a growing but still insufficient emphasis on digital literacy and data analytics (Anderson et al., 2019). Recent educational trends indicate a shift towards more interdisciplinary approaches, where business education intersects with technology and data science, preparing students for the complexities of modern business environments (Taylor et al., 2012).

An effective curriculum that incorporates generative AI must blend technical skills with business acumen. Kolb's (2014) experiential learning model suggests that students benefit from

hands-on, practical experiences, which can be integrated into AI courses through labs, workshops, and real-world projects. For example, a module on generative AI could involve students working with industry-standard tools like TensorFlow and PyTorch to build and deploy AI models, thereby bridging the gap between theoretical knowledge and practical application.

The literature strongly advocates for including ethical considerations in the AI curriculum (Floridi et al., 2018). This is particularly important in business education, where the ethical use of technology can impact not only individual firms but also broader societal norms. Courses should cover topics such as data privacy, bias in AI algorithms, and the societal impacts of automation and AI-generated content. This ethical framework helps future business leaders make informed decisions that balance innovation with responsibility.

Collaborative learning and partnerships with industry are crucial for keeping the curriculum relevant and dynamic. Larson et al., (2021) emphasize the value of engaging students with real-world problems through case studies, internships, and collaborative projects with companies. These experiences not only provide practical insights but also expose students to the latest industry practices and challenges, thereby enhancing their readiness for the workforce.

One of the primary challenges in integrating generative AI into the curriculum is the rapid pace of technological advancement. The continuous evolution of AI technologies necessitates regular updates to course content and teaching materials, posing a logistical challenge for educators and institutions (Varian, 2010). This dynamic nature also requires faculty to engage in ongoing professional development to stay current with the latest trends and tools in AI. Another challenge is the shortage of faculty with expertise in both business and advanced AI technologies. This gap can limit the depth and breadth of course offerings, making it difficult to provide students with a comprehensive education in this area (Loureiro et al., 2021). Institutions may need to invest in faculty training or collaborate with external experts to address this issue. The complexity of generative AI and its applications can be daunting for students, particularly those without a strong technical background. It is crucial to design the curriculum in a way that is accessible to all students while still challenging them to develop a deep understanding of the material. This balance can be achieved through scaffolding learning experiences, providing ample support resources, and incorporating diverse assessment methods to cater to different learning styles (Anderson et al., 2019). Despite these challenges, the integration of generative AI into business education presents significant opportunities. By offering cutting-edge courses, institutions can differentiate themselves in a competitive educational market, attracting students who are eager to gain skills in a high-demand area. Furthermore, students equipped with knowledge of generative AI can drive innovation within their future organizations, contributing to the development of new products, services, and business models (Jannach et al., 2016).

## FRAMEWORK FOR COURSE DEVELOPMENT

The course “Generative Artificial Intelligence for Business” aims to equip undergraduate students with a comprehensive understanding of generative AI technologies and their applications in various business contexts. The specific learning objectives include:

1. **Understanding Core Concepts:** Students will learn the fundamental principles of generative AI, including key technologies such as Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs).

2. **Technical Proficiency:** Students will develop hands-on skills in using tools and programming languages commonly employed in AI, such as Python, TensorFlow, and PyTorch, to build and deploy AI models.
3. **Application in Business:** Students will explore how generative AI can be applied to solve real-world business problems, enhancing areas like marketing, product design, and customer service.
4. **Ethical Considerations:** The course will address the ethical implications of using AI in business, including data privacy, bias, and the societal impacts of AI technologies.
5. **Critical Thinking and Innovation:** Students will be encouraged to think critically about the opportunities and challenges presented by generative AI, fostering innovation and strategic thinking.

Upon completing the course, students should be able to:

- Demonstrate a solid understanding of generative AI technologies and their underlying mechanisms.
- Apply generative AI tools and techniques to analyze and solve business problems.
- Evaluate the ethical considerations and potential risks associated with the use of AI in business settings.
- Communicate complex technical concepts effectively to non-technical stakeholders.
- Develop innovative solutions using generative AI that can enhance business processes and strategies.

### Curriculum design

The course is structured into six key modules, each focusing on different aspects of generative AI and its business applications:

1. **Introduction to Generative AI:** This module covers the basics of AI and machine learning, introducing key concepts and terminology. It includes an overview of generative AI and its differentiation from other types of AI.
2. **Core Technologies and Tools:** Students will delve into specific technologies, including GANs, VAEs, and NLP models. This module includes practical sessions on using software tools such as TensorFlow and PyTorch.
3. **Applications in Business:** This module explores case studies and real-world applications of generative AI in various business domains, such as marketing, finance, and supply chain management.
4. **Ethical and Societal Implications:** Focusing on ethics, this module discusses issues related to data privacy, AI bias, and the broader societal impacts of AI technologies. It includes debates and role-playing exercises to simulate ethical decision-making.
5. **Case Studies and Real-World Applications:** This module involves analyzing case studies to understand how businesses have successfully implemented generative AI. It includes guest lectures from industry professionals who share their experiences and insights.
6. **Capstone Project:** In the final module, students work in teams to complete a capstone project, applying what they have learned to a real or simulated business problem. This project involves creating and presenting a comprehensive generative AI solution.



## Teaching methodologies

The course employs a blend of traditional lectures, interactive workshops, and hands-on labs. Key methodologies include:

- **Lectures and Readings:** Core theoretical concepts are delivered through lectures, supported by readings from academic journals, books, and industry reports.
- **Hands-on Labs:** Practical sessions where students build and test AI models, gaining experience with tools like TensorFlow and PyTorch.
- **Case Studies:** Analysis of real-world scenarios where generative AI has been applied, helping students understand practical challenges and solutions.
- **Guest Lectures:** Industry experts are invited to provide insights into the latest developments and applications of generative AI in business.
- **Group Projects and Presentations:** Students collaborate on projects that simulate real-world business challenges, fostering teamwork and communication skills.

## Assessment Methods

The assessment strategy is designed to evaluate students' understanding and application of course material through a combination of formative and summative assessments:

1. **Quizzes and Exams:** These are used to assess students' grasp of theoretical concepts and their ability to apply these concepts in problem-solving scenarios.
2. **Assignments and Labs:** Regular assignments and lab exercises test students' technical skills and their ability to implement and experiment with AI models.
3. **Case Study Analysis:** Students are required to analyze case studies and provide written reports, demonstrating their understanding of the strategic use of generative AI in business.
4. **Capstone Project:** The capstone project serves as a comprehensive assessment, where students must integrate all aspects of their learning to develop a viable AI-based business solution. This project is presented to a panel of faculty and industry experts, who evaluate the technical soundness, creativity, and feasibility of the proposed solution.
5. **Participation and Class Engagement:** Active participation in discussions, group work, and class activities is encouraged and forms part of the overall assessment, fostering a collaborative learning environment.

## Faculty Training and Development

To effectively deliver this course, faculty members need a strong background in both business and AI technologies. Training sessions will equip faculty with the latest knowledge in AI tools and teaching methodologies. This includes technical workshops focused on enhancing faculty skills in programming languages and AI tools such as Python, TensorFlow, and PyTorch; pedagogical training that covers innovative teaching methods like flipped classrooms and experiential learning tailored to a technology-integrated curriculum; and special sessions on the ethical implications of AI, preparing faculty to lead critical discussions on these issues.

## **Institutional Support**

The institution must allocate resources to support the course, including providing high-performance computing resources and software licenses necessary for running AI models and simulations. Access to the latest books, journals, and online resources related to AI and business will be ensured, along with establishing partnerships with companies and organizations that can offer guest speakers, case studies, and project opportunities.

To facilitate learning, students will have access to a comprehensive online platform for accessing course materials, submitting assignments, and participating in discussions. Regular office hours and tutoring services will assist students with challenging concepts and assignments. Additional workshops and seminars on specific technical skills or industry trends will be provided to deepen students' knowledge.

## **Implementational Strategy**

To deliver the course “Generative Artificial Intelligence for Business” effectively, a robust technological infrastructure is essential. This includes access to high-performance computing resources or cloud-based solutions necessary for handling the computational demands of training and running AI models, with infrastructure supporting parallel processing and sufficient GPU capabilities. Licenses for key software tools such as TensorFlow, PyTorch, Jupyter Notebooks, and data visualization platforms like Tableau or Power BI are vital for hands-on labs and projects. Secure data storage solutions are needed to manage course datasets, including secure servers for storing sensitive or proprietary data in compliance with data privacy regulations. Investment in faculty development is crucial, encompassing technical training to ensure proficiency with the latest AI technologies and pedagogical training for adopting innovative teaching methods. Faculty participation in AI and business conferences and workshops will further enhance their expertise. The course will require physical classrooms equipped with smart technology for interactive teaching and computer labs with high-spec machines, facilitating both individual and group work with sufficient space for collaborative projects. A robust Virtual Learning Environment (VLE) is critical for delivering online content, hosting discussion forums, and managing assignments, seamlessly integrating with tools like video conferencing software for remote lectures and guest speaker sessions.

## **Collaboration with Industry Experts**

Collaboration with industry professionals will provide practical insights and real-world applications of generative AI. Regular guest lectures and workshops will expose students to the latest industry trends and practices. Partnerships with companies will facilitate joint research projects, allowing students and faculty to work on cutting-edge AI applications in business, serving as capstone projects for students.

## **Student Engagement and Support**

The course will employ interactive and multimedia learning materials, such as video tutorials, interactive simulations, and online quizzes, to enhance understanding and retention of complex concepts. Incorporating case studies and real-world examples will help students see the

practical applications of theoretical concepts, fostering critical thinking and problem-solving skills.

### **Continuous Improvement and Feedback**

Regular student feedback through surveys, focus groups, and course evaluations will identify areas for improvement, ensuring the course remains relevant and meets student needs. Periodic reviews of faculty performance and course content will help maintain high teaching standards and incorporate new developments in the field of AI. The curriculum will be reviewed and updated regularly to reflect the latest advancements in AI technology and industry practices, including revising course materials, updating case studies, and incorporating new tools and techniques. An industry advisory board, composed of industry leaders and experts, will provide valuable insights and recommendations for course content and structure, ensuring the course aligns with industry needs and trends.

### **Challenges and Considerations**

One of the primary challenges in offering a course on “Generative Artificial Intelligence for Business” is the rapid pace of technological advancement in the field of AI. New techniques, tools, and applications are continually emerging, which can quickly render existing course content outdated. To address this, the course curriculum must be dynamic and regularly updated to include the latest developments in generative AI. This requires a proactive approach to curriculum design and close monitoring of industry trends and academic research.

Maintaining a curriculum that reflects the latest advancements in generative AI also necessitates ongoing faculty training. Faculty members need to stay current with new technologies and methodologies, which can be challenging given their existing teaching and research commitments. Institutions must invest in professional development opportunities, such as attending conferences, participating in workshops, and engaging with industry experts, to ensure faculty are well-prepared to teach cutting-edge content.

### **Ethical and Legal Considerations**

GenAI technologies, while powerful, raise significant ethical and legal concerns. Issues such as data privacy, algorithmic bias, and the potential misuse of AI-generated content (e.g., deepfakes) need to be addressed within the course. Educators must prepare students to navigate these complex ethical landscapes, fostering a sense of responsibility and ethical awareness in the application of AI technologies.

The use of generative AI also involves considerations related to intellectual property rights and data security. Students must understand the legal frameworks governing the use of proprietary data and the creation of AI-generated content. This includes respecting copyright laws, handling sensitive data responsibly, and being aware of the legal ramifications of AI-generated works. Embedding these topics into the curriculum is essential for developing legally savvy business professionals.

Offering a course in generative AI requires significant investment in technology, including high-performance computing resources and specialized software. Ensuring that all students have equitable access to these resources can be a challenge, particularly in institutions with limited



budgets. To address this, schools may need to explore partnerships with technology providers, secure funding through grants, or implement cost-sharing models that reduce financial barriers for students.

Ensuring that the course is inclusive and accessible to a diverse student body is another important consideration. This includes making accommodations for students with disabilities, providing support for non-technical students who may find the material challenging, and promoting an inclusive learning environment that respects and values diversity. This approach not only enhances the learning experience but also prepares students to work in diverse, inclusive workplaces.

## **BALANCING THEORY AND PRACTICE**

A significant challenge in teaching GenAI is balancing the theoretical aspects of the subject with practical, hands-on learning experiences. While it is essential for students to understand the underlying mathematical and computational principles of AI, they must also be able to apply these concepts in real-world scenarios. This balance can be achieved by incorporating labs, projects, and case studies that allow students to experiment with AI technologies and develop practical skills.

Another aspect of balancing theory and practice is ensuring that course content is relevant to real-world applications. Collaborating with industry partners can provide valuable insights into how generative AI is used in business contexts and can help bridge the gap between academic learning and professional practice. However, maintaining these partnerships requires ongoing effort and coordination, including aligning academic goals with industry needs and ensuring that collaborations are mutually beneficial.

### **Scalability and Adaptability**

As interest in AI grows, there may be increased demand for courses in generative AI. Scaling the course to accommodate more students can be challenging, particularly in terms of maintaining the quality of instruction and providing adequate resources for all participants. Solutions may include hiring additional faculty, expanding online course offerings, and leveraging teaching assistants to manage larger classes.

The course on generative AI for business must be adaptable to various educational contexts, including different institutional types (e.g., research universities, liberal arts colleges) and student populations (e.g., full-time students, working professionals). This adaptability can be achieved through flexible course designs, such as offering modular content that can be tailored to specific audiences, and providing multiple delivery modes (e.g., in-person, online, hybrid).

## **MEASURING SUCCESS AND OUTCOMES**

Effectively measuring the success of the course requires robust assessment methods that go beyond traditional exams and quizzes. This includes evaluating student performance on projects, presentations, and practical applications of AI technologies. Additionally, gathering feedback from students, alumni, and industry partners can provide valuable insights into the course's impact and areas for improvement.

Finally, it is important to consider the long-term impact of the course on students' careers and the broader business landscape. This includes tracking graduates' career paths, their contributions to the field of AI, and the ways in which they apply their learning in professional settings. Such longitudinal studies can help assess the effectiveness of the course and its alignment with evolving industry needs.

This section addresses the various challenges and considerations involved in developing and implementing a course on "Generative Artificial Intelligence for Business." By acknowledging and planning for these issues, educators and institutions can better equip students with the skills and knowledge needed to thrive in an increasingly AI-driven business environment.

The integration of generative artificial intelligence (AI) into business practices is transforming industries by enabling unprecedented levels of innovation, efficiency, and personalization. As businesses increasingly adopt these technologies, the demand for professionals who can understand and leverage generative AI is growing. This paper has presented a comprehensive framework for developing an undergraduate course on "Generative Artificial Intelligence for Business," aimed at equipping future business leaders with the necessary skills and knowledge.

The proposed course framework covers key aspects, including fundamental concepts of generative AI, practical applications in business, ethical considerations, and hands-on experience with advanced AI tools. By focusing on both the theoretical and practical dimensions of AI, the course prepares students to critically analyze and creatively apply these technologies in various business contexts. Additionally, the curriculum emphasizes the ethical use of AI, ensuring that students are aware of the broader societal impacts and responsibilities associated with deploying AI technologies.

The implementation strategy outlined in this paper addresses essential factors such as resource requirements, faculty training, student engagement, and industry collaboration. By investing in the necessary infrastructure and fostering partnerships with industry, educational institutions can provide a robust learning environment that supports the development of cutting-edge skills. Furthermore, continuous improvement mechanisms, including regular updates to the curriculum and feedback loops, ensure that the course remains relevant and aligned with the latest advancements in the field.

Despite the challenges associated with rapidly evolving technology, ethical considerations, and resource allocation, the potential benefits of offering such a course are substantial. Graduates of this program will be well-positioned to lead and innovate in an AI-driven world, bringing valuable insights and capabilities to their future roles. The course not only contributes to the academic growth of students but also prepares them to make meaningful contributions to the business landscape, driving forward the responsible and strategic use of generative AI.

In conclusion, as the influence of generative AI continues to expand, there is a pressing need for business education to evolve in response. By offering courses that blend technical expertise with business acumen, educational institutions can play a pivotal role in shaping the next generation of leaders who are not only proficient in AI technologies but also equipped to address the ethical and strategic challenges they present. This course framework provides a foundational step in that direction, fostering a new wave of business professionals capable of navigating the complexities of a technology-driven future.

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## Appendix – Course Outline

| Week | Topics  | Readings  | Activities  |
|------|---|---|---|
| 1    | Introduction to Generative AI and Course Overview             | Introduction and Chapter 1 of “Artificial Intelligence in Practice” | Course introduction, syllabus review, overview of AI and its business relevance                     |
| 2    | Fundamental Concepts in AI and Machine Learning               | Chapter 2   | Understanding AI and ML basics, discussion on key AI technologies                                   |
| 3    | Generative AI: Overview and Applications                      | Chapter 3   | Introduction to generative AI, examples of applications in various industries                       |
| 4    | Generative Adversarial Networks (GANs): Business Applications | Chapter 4   | Case study analysis on GANs in marketing and content creation                                       |
| 5    | Variational Autoencoders (VAEs) and Other Generative Models   | Chapter 5   | Exploring VAEs and their business applications, including data generation and augmentation          |
| 6    | Natural Language Processing (NLP) with Generative AI          | Chapter 6   | Using NLP for customer interaction and content generation, case studies                             |
| 7    | Practical Applications: Marketing and Customer Engagement     | Chapter 7   | In-depth look at how businesses use AI to enhance marketing and customer experience                 |
| 8    | Midterm Exam and Project Proposal Submission                  |   | Midterm exam covering theoretical and practical knowledge, submission of capstone project proposals |
| 9    | AI in Product Design and Innovation                           | Chapter 8   | How AI is used for product innovation, case studies on design optimization                          |
| 10   | AI for Business Operations and Efficiency                     | Chapter 9   | Exploring AI applications in logistics, supply chain management, and operations                     |
| 11   | Ethical and Societal Implications of AI                       | Chapter 10  | Discussing ethical considerations, data privacy, and the impact of AI on society                    |
| 12   | Legal and Regulatory Considerations in AI                     | Chapter 11  | Understanding the legal landscape, intellectual property, and compliance issues                     |
| 13   | Case Studies: Successful AI Implementations                   | Chapter 12  | Group presentations on selected case studies from the book  |
| 14   | Capstone Project Work and Peer Review                         | -   | In-class work on capstone projects, peer review sessions, refining project deliverables             |

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|----|--------------------------------|---|---|
| 15 | Capstone Project Presentations | - | Final presentations of capstone projects, feedback and evaluation       |
| 16 | Course Review and Final Exam   | - | Review of course content, discussion on future trends in AI, final exam |

