**I. Introduction to the Course**

* **A. Course Title and Context**
  + "Creating Business Value With AI"
  + Offered by Cornell University, 2024
  + Instructor: Lutz Finger, Visiting Senior Lecturer, SC Johnson College of Business
* **B. Purpose and Objectives** (PAGE5)
  + Explore AI’s evolution from theory to practical tool
  + Teach students to create and assess AI products with actionable value
  + Separate lasting value from hype, focusing on ethical and effective AI use
* **C. Structure**
  + Four modules, each with readings, videos, activities, and projects
  + Emphasis on hands-on learning with an embedded AI tool (GPT-4)
  + No-coding approach with optional Python activities

**II. Instructor Background**

* **A. Lutz Finger’s Profile** (PAGE5-6)
  + President of Product and Development at Marpai Inc.
  + Former Google population health team creator
  + Forbes contributor on AI and deep learning
  + Author of "Ask, Measure, Learn" (2014)
  + MBA from INSEAD, MS in quantum physics from TU Berlin

**III. Course Components and Tools**

* **A. AI Product Development Toolkit** (PAGE9-15)
  + Embedded AI algorithm (OpenAI’s GPT-4) for collaboration
  + Prompt engineering best practices: specificity, rephrasing, iteration, context recaps
  + Troubleshooting steps for AI interactions
  + Optional Python use via Google Colab for coding exercises
* **B. Generative AI and Dataset Considerations** (PAGE16-17)
  + Closed AI tool, not used for external training
  + Potential for inaccuracies or biases; requires critical monitoring
  + Uses authentic, anonymized datasets with possible unfiltered content

**IV. Module Breakdown**

* **A. Module 1: Identify the Dimensions That Define an AI Product** (PAGE18-33)
  + **Objective**: Understand AI’s capabilities and limits for product design
  + **Key Topics**:
    - AI history and areas: GOFAI, deep learning, generative AI, foundation models (PAGE19-26)
    - Human logic vs. AI approaches (PAGE24-26)
    - ML techniques: regression, classification, clustering, sequence prediction, creation (PAGE30-32)
  + **Activities**:
    - "Activity: Identifying the Relevant Areas of AI" (PAGE27-29): Match AI types to scenarios
    - "Assignment: Module 1 Project" (PAGE7): Define an AI product idea
  + **Wrap-Up**: Create an AI product idea fitting personal/professional needs
* **B. Module 2: Discern Value From Hype to Capture Long-Term Impact** (PAGE2, PAGE7)
  + **Objective**: Evaluate AI’s true value vs. short-term trends
  + **Key Topics**:
    - Redefining value with generative AI (PAGE2)
    - Balancing innovation and social responsibility (PAGE2)
  + **Activities**:
    - "Discussion: Developing Metrics That Measure Value and Mitigate Hype" (PAGE2)
    - "Assignment: Module 2 Project" (PAGE7): Analyze historical market bubbles
  + **Wrap-Up**: Focus on long-term impact over hype
* **C. Module 3: Formulate an AI Product Idea With Actionable Value** (PAGE2, PAGE8)
  + **Objective**: Develop an AI product with measurable outcomes
  + **Key Topics**:
    - Building actionable AI products (PAGE2)
    - Assessing foundation models’ impact and cost benefits (PAGE2)
  + **Activities**:
    - "Activity: Assessing the Actionability of an AI Product Idea" (PAGE2)
    - "Assignment: Module 3 Project" (PAGE8): Propose a supervised classifier
  + **Wrap-Up**: Define a business objective with action, value, and metrics
* **D. Module 4: Leverage an AI Algorithm for AI Product Development** (PAGE2-3, PAGE177-204)
  + **Objective**: Apply AI algorithms to derive actionable insights
  + **Key Topics**:
    - No-code AI implementation (PAGE2)
    - Data analytics with datasets (e.g., Espresso\_Shots.csv) (PAGE197-198)
    - Coffee case study: Measuring espresso variables (PAGE177-196)
    - Actionable value as development focus (PAGE200-202)
  + **Activities**:
    - "Activity: It’s Showtime - Create Your Own AI Classifier" (PAGE2)
    - "Code: Prepare to Leverage an AI Algorithm" (PAGE197-198)
    - "Assignment: Module 4 Project" (PAGE199): Analyze espresso data, propose a classifier
    - "Discussion: Assessing the Actionable Value of Derived Insights" (PAGE200-201)
  + **Wrap-Up**: Build AI products with purpose and value (PAGE204)

**V. Key Themes and Concepts**

* **A. AI Evolution and Areas** (PAGE19-26)
  + GOFAI: Rule-based, symbolic logic
  + Deep Learning: Neural networks for complex patterns
  + Generative AI: Content creation from training data
  + Foundation Models: Versatile, data-intensive models
* **B. Actionable Value** (PAGE200-204)
  + Central to AI product success
  + Requires clear business objectives and measurable outcomes
  + Example: Coffee experience beyond data (PAGE202-203)
* **C. Prompt Engineering** (PAGE9-11, PAGE197)
  + Crafting effective AI inputs for collaboration
  + Iterative process to refine outputs
* **D. Human vs. AI Logic** (PAGE24-26)
  + Human logic: Ethical, contextual, adaptive
  + AI: Scalable, fast, consistent but lacks depth of judgment
* **E. Coffee Case Study** (PAGE177-196)
  + Explores espresso variables (flow, pressure, temperature)
  + Illustrates data-driven vs. experience-based insights
  + Community-driven refinement of coffee profiles

**VI. Projects and Assessments**

* **A. Module Projects** (PAGE7-8)
  + Module 1: Define an AI product’s dimensions
  + Module 2: Analyze market bubbles for value vs. hype
  + Module 3: Formulate an AI product with actionable value
  + Module 4: Leverage data analytics for a supervised classifier
* **B. Assessment Approach**
  + Sequential progression; prior assessments unlock final project
  + Collaboration with AI tool, submitted via transcripts (PAGE197-199)
  + Discussion participation required (PAGE200-201)

**VII. Ethical and Practical Considerations**

* **A. AI Limitations and Biases** (PAGE4, PAGE16)
  + Potential for errors, biases, or inappropriate outputs
  + Need for critical oversight and ethical alignment
* **B. Business Relevance** (PAGE202-204)
  + Focus on “why” before analytics
  + Align AI with user needs and societal goals

**VIII. Conclusion**

* **A. Course Wrap-Up** (PAGE205)
  + Acknowledgment of completion
  + Emphasis on understanding AI’s role and value creation
* **B. Takeaways**
  + Skills to build AI products with purpose
  + Awareness of AI’s strengths, limits, and ethical implications

**Summary of "Creating Business Value With AI" (jcb701\*)**

"Creating Business Value With AI" is a Cornell University course designed to demystify artificial intelligence (AI) and empower students to develop AI-driven products that deliver tangible, actionable value. Delivered in 2024 by Lutz Finger, a seasoned technologist and Visiting Senior Lecturer at the SC Johnson College of Business, the course spans four modules, blending theoretical foundations with hands-on projects. It leverages an embedded AI tool powered by OpenAI’s GPT-4, emphasizing a no-code approach supplemented by optional Python activities. The course targets business leaders and professionals, guiding them to harness AI’s potential while navigating its hype, limitations, and ethical implications.

**Course Overview and Objectives**

The course traces AI’s evolution from a theoretical concept to a cornerstone of modern innovation, as outlined in the "Course Description" (PAGE5). Once confined to labs and sci-fi, AI now shapes daily life through tools like ChatGPT, driving productivity and creativity across industries. The primary objective is to teach students how to craft AI products that solve real problems, distinguishing genuine value from fleeting trends. Students explore AI’s history, core methodologies, and practical applications, culminating in the creation and assessment of their own AI product. The course stresses ethical alignment, ensuring AI enhances human endeavors responsibly.

**Instructor and Context**

Lutz Finger brings over 20 years of experience in data science and product management, with roles at Google, LinkedIn, and Marpai Inc., where he serves as President of Product and Development (PAGE5-6). A Forbes contributor and author of "Ask, Measure, Learn," Finger combines technical expertise with a business-oriented perspective. Delivered in 2024, the course reflects AI’s rapid mainstream adoption, urging students to engage thoughtfully with its transformative power.

**Module Structure and Content**

The course is structured into four progressive modules, each building skills through readings, videos, activities, and projects (PAGE1-3, PAGE7-8):

1. **Module 1: Identify the Dimensions That Define an AI Product** (PAGE18-33)
   * Introduces AI as a tool with distinct areas: Good Old-Fashioned AI (GOFAI), deep learning, generative AI, and foundation models (PAGE19-26). GOFAI uses rule-based, symbolic logic, while modern methods like neural networks tackle complex patterns. "Watch: Navigate the AI Landscape" (PAGE19) maps this evolution, from GOFAI’s simplicity to ChatGPT’s generative capabilities. Students learn to match AI approaches to use cases (e.g., GOFAI for tic-tac-toe, deep learning for medical imaging) via "Activity: Identifying the Relevant Areas of AI" (PAGE27-29). The project tasks students with defining an AI product idea tailored to their context (PAGE7).
2. **Module 2: Discern Value From Hype to Capture Long-Term Impact** (PAGE2, PAGE7)
   * Focuses on separating genuine innovation from overhyped trends. "Watch: Discern Innovation From Hype" (PAGE2) and the project (PAGE7) analyze historical market bubbles (e.g., dot-com era) to identify lasting value. Discussions explore metrics to measure value and mitigate hype (PAGE2), while "Watch: Balance Innovation and Social Responsibility" (PAGE2) emphasizes ethical deployment. The module underscores AI’s long-term potential over short-term buzz.
3. **Module 3: Formulate an AI Product Idea With Actionable Value** (PAGE2, PAGE8)
   * Guides students to develop AI products with clear action, value, and metrics. "Watch: Build AI Products With Actionable Value" (PAGE2) and "Read: Assess the Actionability of an AI Product Idea" (PAGE2) stress defining business objectives. The project (PAGE8) involves proposing a supervised classifier to address a specific problem, such as customer retention or fraud detection, highlighting foundation models’ cost-effectiveness (PAGE2). The "So What" Check (PAGE2) ensures relevance.
4. **Module 4: Leverage an AI Algorithm for AI Product Development** (PAGE2-3, PAGE177-204)
   * Applies AI algorithms to real data, using the Espresso\_Shots.csv dataset (PAGE197-198). Students perform analytics to derive insights, propose a supervised classifier, and assess actionable value (PAGE199-200). "Watch: The Data of Coffee" (PAGE2) and a detailed coffee case study (PAGE177-196) explore espresso variables (flow, pressure, temperature), revealing data’s limits without taste labels. The module emphasizes no-code AI development, with the AI tool handling coding tasks (PAGE2), and concludes with reflections on value-driven design (PAGE204).

**Key Concepts and Tools**

* **AI Areas and Techniques**: The course covers GOFAI (symbolic, rule-based), deep learning (neural networks), generative AI (content creation), and foundation models (versatile, data-heavy) (PAGE24-26). ML techniques include regression, classification, clustering, sequence prediction, and creation (PAGE30-32), with examples like fraud detection or hospital flow optimization (PAGE31-32).
* **Actionable Value**: Central to the course, actionable value requires insights tied to measurable outcomes (PAGE200-204). "Watch: Experience is Often More Than Data Can Show" (PAGE202) illustrates this with Finger’s anecdote about irrelevant analytics (e.g., CEO name length), stressing the “why” before data analysis.
* **Prompt Engineering**: The "AI Product Development Toolkit" (PAGE9-15) teaches students to craft precise, iterative prompts for the GPT-4-based tool, breaking tasks into steps and refining outputs (PAGE197). This skill enables effective collaboration without coding.
* **Human vs. AI Logic**: Human logic excels in ethics and context, while AI offers speed and scalability (PAGE24-26). Combining both maximizes impact, as seen in judicial support systems (PAGE29).

**Practical Applications: Coffee Case Study**

A standout feature is the coffee case study (PAGE177-196), where John Buckman discusses the Decent Espresso machine. Initially a scientific tool measuring flow, pressure, and temperature, it evolved through community feedback into a guided system for better espresso. The study highlights three phases: experimentation, profile refinement, and data-driven guidance (e.g., adjusting grind based on flow rates). It underscores data’s role in understanding coffee extraction but notes the absence of taste labels, requiring inferred metrics like user behavior (PAGE187-188). This mirrors broader AI challenges: deriving value from incomplete data.

**Projects and Learning Approach**

Students complete four projects (PAGE7-8):

* **Module 1**: Define an AI product’s dimensions.
* **Module 2**: Evaluate market bubbles for value.
* **Module 3**: Propose a supervised classifier with actionable value.
* **Module 4**: Analyze espresso data and design a predictive model. The no-code approach uses the AI tool for analytics and coding, with Python via Google Colab as an optional supplement (PAGE14-15). Assessments require collaboration transcripts (PAGE197-199), and discussions (PAGE200-201) foster peer engagement on value assessment.

**Ethical and Practical Insights**

AI’s limitations—biases, inaccuracies, and hype—are recurring themes (PAGE4, PAGE16). The course advocates starting with business questions, not technology, to avoid wasteful analytics (PAGE202-203). Ethical alignment ensures AI serves human values, not just profit (PAGE204). The coffee case study exemplifies this: aligning machine design with user delight, not just technical prowess (PAGE195-196).

**Conclusion**

The course concludes with "Read: Thank You and Farewell" (PAGE205), celebrating students’ readiness to build value-driven AI products. It equips them to understand AI’s technical scope, apply it practically, and navigate its ethical landscape. From GOFAI to generative AI, students learn to ask “why” first, ensuring AI enhances business and society. The espresso analogy encapsulates this: perfect coffee (or AI) blends precision, passion, and purpose.