Figure 1: AI-Assisted Power BI for Business Analytics

AI-ASSISTED POWER BI FOR BUSINESS ANALYTICS

[TBD TERM]

> **DRAFT - For VT Team Presentation March 26, 2026** Items marked [TBD] to be finalized in Dr. Venkatesh + Fabio working session (March 21-22)

INSTRUCTOR

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TEACHING ASSISTANT

Fabio Correa Director of Advanced Business Analytics, Microsoft Email: fabioc@microsoft.com Office hours: By appointment via https://aka.ms/AskFabio

Industry TA Role: This course features an unusual TA arrangement - a Microsoft industry executive providing hands-on Power BI and Copilot support. The TA brings real-world enterprise analytics experience and will lead industry case presentations.

Role of TA: The TA provides tool support (Power BI, Copilot) and industry context but will not design your analysis for you. The TA is operating under the direct instruction of the professor with regard to duties and boundaries. The assignments and projects are yours, not the TA's. **"The TA told me to do it" will not constitute a valid explanation for anything** - it is your assignment/project.

GUEST EXECUTIVE

[TBD - Executive Search in Progress] Title: [TBD] Company: Starbucks Participation: Module 1 (Introduction + Data Handoff) and Module 7 (Final Presentations), in person at Virginia Tech or via Zoom

OVERVIEW

The analytics landscape is undergoing a fundamental shift. AI-powered tools like Microsoft Copilot are transforming how business professionals interact with data - from writing formulas to having conversations.

This course prepares MBA students for this new reality. Using Microsoft Power BI with **Copilot as the primary interface**, students learn to ask the right questions, generate reports through natural language, and - most importantly - translate data into actionable business insights.

What makes this course unique:

- **AI-First Approach**: Copilot is not a feature we cover; it's how we work. Students learn to prompt effectively rather than memorize syntax.
- **Live Case Partnership**: A Starbucks executive provides real business data and receives student recommendations at course end.
- **Dual-Track Learning**: Practice skills on synthetic data; apply them to real business problems.

- **Insights Over Reports**: A dashboard is not the deliverable. Every exercise culminates in written recommendations that drive decisions.

    Core Principle: *"A Power BI report is not the deliverable. Insights are."*

LEARNING OBJECTIVES

By the end of this course, students will be able to:

- **Query data through conversation**: Use Copilot's natural language interface to explore, filter, and summarize business data without writing code.
- **Generate reports with AI**: Build professional dashboards by prompting Copilot, iterating on outputs, and refining results.
- **Discover hidden patterns**: Apply AI visuals (Key Influencers, Smart Narratives, Anomaly Detection) to surface insights that traditional analysis might miss.
- **Prepare data for AI effectiveness**: Structure and model data to maximize Copilot's accuracy and usefulness.
- **Critically evaluate AI outputs**: Assess AI-generated insights for accuracy, relevance, and business applicability.
- **Communicate insights to stakeholders**: Synthesize findings into executive summaries that answer business questions and recommend actions.
- **Present to business leadership**: Deliver actionable recommendations to a real executive audience.

COURSE DELIVERY

This is an in-person course. The guest executive may participate in person at Virginia Tech or via Zoom, depending on their availability.

No recording of any in-class activities is permitted without a written request from an appropriate university administrator for the purpose of a learning-related accommodation.

Use of technology of any sort for anything other than class purposes is discouraged. If you must take a call or text, please leave the classroom and come back when you are ready to join the class.

CLASS STRUCTURE: DUAL-TRACK LEARNING

Each module follows a dual-track approach:

Track	Purpose	Data Source
Skills Lab	Low-stakes practice of Power BI/Copilot skills	Synthetic datasets (CloudRevenue, M365Marketing, SupportInsights)
Live Case Analysis	Real business application with stakes	Starbucks data (provided by guest executive)

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```

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Learn on synthetic data, apply to real business problems.

A typical session:

Block	Duration	Activity
Opening	15-20 min	Review, warm-up, connect to prior learning
Concept	30-45 min	Lecture + demonstration of new capabilities
Skills Lab	30-40 min	Hands-on practice with synthetic data
Break	15 min	-
Live Case	30-40 min	Apply concepts to Starbucks data as a class
Synthesis	10-15 min	Reflection, prompting journal, preview next session

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    Concept (Lecture + Demo)        :00:20, 45m
    Skills Lab (Practice)           :01:05, 40m
    Break                           :crit, 01:45, 15m
    Live Case (Apply)               :02:00, 40m
    Synthesis (Reflect + Preview)   :02:40, 15m
```

MATERIALS

Required

- **Power BI Service** (Web): Free account at app.powerbi.com
- **Course Materials**: Provided via Canvas (datasets, templates, case studies)
- **Copilot Access**: Provided via course lab environment

  Note: This course uses Power BI Service (web) exclusively to ensure consistent experience across Windows and Mac. All Copilot features are available in the browser.

Optional Readings

AI & Copilot in Power BI (Microsoft Learn) - Copilot in Power BI Overview: https://learn.microsoft.com/en-us/power-bi/create-reports/copilot-introduction - Write Copilot Prompts: https://learn.microsoft.com/en-us/power-bi/create-reports/copilot-prompts-report-pages - AI Visuals: https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-influencers

Data Visualization Best Practices - Storytelling with Data Blog: https://www.storytellingwithdata.com/blog - Data Visualization Checklist: https://depictdatastudio.com/checklist/

SCHEDULE

Module 1: The AI-Powered Analytics Landscape

Topics: - The evolution of BI: from reports to conversations - **Dialog Engineering**: Moving beyond one-shot prompts to iterative AI partnership (CSAR Loop: Clarify → Summarize → Act → Reflect) - Power BI ecosystem overview (Service, Mobile) - Introduction to Copilot: three experiences - Q&A: natural language data exploration - Appropriate Reliance: knowing when to trust, verify, or reject AI outputs

GUEST EXECUTIVE SESSION: Starbucks executive introduces themselves, presents business context, and hands off real dataset with business questions to answer.

Skills Lab: Your First AI Conversation with Data (CloudRevenue dataset) - Use Copilot to summarize report and ask 10+ natural language questions - **Deliverable**: Reflection document comparing Copilot performance to manual inspection

Live Case: Initial exploration of Starbucks data; document first impressions and questions

Module 2: Creating Reports with Copilot

Topics: - Copilot report creation: "Create a report about…" - Iterative prompting: refining AI outputs - Understanding semantic models (conceptual)

Skills Lab: Prompt-Driven Report Creation (CloudRevenue dataset) - Generate initial report using Copilot - Refine through 3+ iterative prompts - **Deliverable**: Published report + screenshot of prompts used

Live Case: Generate initial Starbucks report using Copilot; team brainstorm on key metrics

Team Formation: Teams of 3-4 for Capstone Project

Module 3: Discovering Insights with AI Visuals

Topics: - Key Influencers visual: "What drives [outcome]?" - Anomaly Detection: automatic outlier identification - Smart Narratives: natural language summaries - Decomposition Tree: AI-guided exploration

Skills Lab: AI-Powered Root Cause Analysis (SupportInsights dataset) - Use Key Influencers, Anomaly Detection, Smart Narrative - **Deliverable**: 1-page executive summary with AI-discovered insights

Live Case: Apply Key Influencers to Starbucks data - what drives the outcomes the executive cares about?

Module 4: Data Foundations for AI Success

Topics: - Why AI needs clean, well-structured data - Star schema concepts (facts and dimensions) - Data preparation essentials: naming, types, terminology - AI-ready metadata: descriptions, synonyms, AI instructions

Skills Lab: Preparing Data for Copilot (CloudRevenue dataset) - Add descriptions and synonyms to semantic model - Test Copilot Q&A before and after improvements - **Deliverable**: Before/after comparison showing metadata impact

Live Case: Assess Starbucks data quality; identify preparation improvements needed

Capstone Check: Initial Copilot-generated Starbucks report due

Module 5: Visualization Design & Storytelling

Topics: - Visualization selection: matching chart to question - The executive dashboard: what leaders need to see - Design principles: less is more, color with purpose - Interactive elements: slicers, drill-through, bookmarks

Skills Lab: Executive Dashboard Design (M365Marketing dataset) - Redesign report for C-suite audience - Add navigation and professional formatting - **Deliverable**: 1-2 page executive summary with findings

Live Case: Design Starbucks executive dashboard - what does the guest executive need to see?

Module 6: Sharing, Collaboration & Governance

Topics: - Power BI Service: workspaces and apps - Sharing options: direct, workspaces, apps - Row-Level Security: controlling who sees what - Governance considerations and AI responsible use

Skills Lab: Deploy Your Solution (Any dataset) - Create workspace and publish reports - Create app with curated content - **Deliverable**: Screenshot of published app + governance reflection

Live Case: Prepare Starbucks workspace and app for executive presentation

Capstone Draft: Due for peer review

Module 7: Executive Presentations

   GUEST EXECUTIVE SESSION: Starbucks executive returns to receive team presentations.

Activity: Team presentations to guest executive - 12-minute team presentations - 8-minute Q&A with Socratic questioning from executive - Executive provides feedback (advisory input to grading) - Peer evaluation

Capstone Final Submission: Due by class time

GRADING

Grading Breakdown

Component	Weight	Type	Description
Class Participation	15%	Individual	Quality of case discussions and lab engagement
Prompting Journal	10%	Individual	Weekly reflection on Copilot interactions
Lab Deliverables	20%	Individual	Completed hands-on exercises (Modules 1-6)
Capstone Project	30%	Group	Team project with Starbucks data
Individual Interview	15%	Individual	[TBD - Under Consideration] Verify individual understanding
Peer Evaluation	10%	Group	Contribution to team and peer learning

Total: 100%

   Note: Grading weights are draft pending Dr. Venkatesh + Fabio working session. Individual interview component (from BIT 5424 model) under consideration for accountability.

Letter Grades

Grade	Range	Grade	Range	Grade	Range
A	94%+	B-	80-82.99%	D+	67-69.99%
A-	90-93.99%	C+	77-79.99%	D	64-66.99%
B+	87-89.99%	C	74-76.99%	D-	60-63.99%
B	84-86.99%	C-	70-73.99%	F	Below 60%

Grade Appeal

All grade appeals must be submitted in writing and within one week of the posting of the grade on Canvas. A grade appeal must be specific about the concerns and will typically result in a re-evaluation of the entire deliverable that could result in a change upward, change downward, or no change.

POLICIES

Attendance and Participation

Class participation is 15% of your grade. Each student's contribution is evaluated daily.

Outstanding Contribution: - Advances class understanding with business insights - Shares effective prompting strategies - Challenges AI outputs with critical thinking - Connects concepts to professional experience

Effective Contribution: - Prepared with completed labs - Engages in discussions - Asks clarifying questions

Needs Improvement: - Unprepared or absent - Passive in discussions - Relies on others during labs

Please expect to be "cold-called."

Late Submissions

Late submission will result in a 10% per day penalty for up to two days. After two days, no credit will be awarded but submission is still mandatory to continue progress.

Late Pass: Each student receives one late pass allowing a 2-day extension without penalty. Use wisely.

Use of Gen AI Tools

The use of Gen AI tools (Copilot, ChatGPT, etc.) in this course is **encouraged** - this is an AI-first course.

Requirements: 1. **Disclosure**: Note in your submissions when and how you used AI assistance 2. **Transcript**: Submit complete transcript (prompts and responses) with any AI-assisted work 3. **Understanding**: You must be able to explain and defend any AI-generated outputs. "Copilot told me" is not sufficient justification. 4. **Original Work**: The role of AI should be supporting and supplementary. Your submissions must still be your work.

Failure to disclose AI use will be treated as intentional concealment and referred to the honor council.

Confidentiality (Starbucks Data)

If the guest executive provides proprietary data, students will sign a Non-Disclosure Agreement (NDA) before receiving access. The confidentiality requirements are:

- Data may only be used for course purposes
- All analysis stays within Virginia Tech's Canvas learning management system
- Data may not be shared outside the class or included in public portfolios
- Nothing is shared publicly without written approval from the executive
- All data must be deleted at course end

The NDA is optional - it depends on the executive's data-sharing preferences. If the executive chooses to provide only publicly available data, no NDA is required.

WELL-BEING

You should prioritize your well-being. Please ensure that you seek a holistic approach to your life where your education and learning are a part.

No weekend deliverables: All deadlines fall on weekdays during business hours.

Please note that, as the instructor and TA also consider their own well-being, you should expect two business days as a standard for email responses - you may not typically receive responses during weekends.

Counseling Resources

Should circumstances arise and you feel the need for support, you are strongly encouraged to seek help: - **Cook Counseling Center**: http://ucc.vt.edu - **Pamplin Student Services**: Contact for additional resources

ACADEMIC INTEGRITY AND HONOR CODE

Adherence to VT's honor code is necessary (honorsystem.vt.edu).

VT's Honor Code pledge that each member of the university community agrees to abide by states:

> "As a Hokie, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Students enrolled in this course are responsible for abiding by the Honor Code. A student who has doubts about how the Honor Code applies to any assignment is responsible for obtaining specific guidance from the instructor before submitting any deliverable.

PRINCIPLES OF COMMUNITY

Virginia Tech is committed to teaching and learning, research, and outreach to the Commonwealth of Virginia, the nation, and the world community.

- We affirm the inherent dignity and value of every person
- We affirm the right of each person to express thoughts and opinions freely
- We reject all forms of prejudice and discrimination

Full statement: https://www.inclusive.vt.edu/Programs/vtpoc0.html

We may engage in discussions, even animated ones, about what constitutes good analysis and may disagree. But we will always discuss ideas and not people - absolutely NO discriminatory or disrespectful behavior of any individual will be tolerated.

SPECIAL NEEDS

Students requiring special accommodations must notify the instructor by the first week of class. No specific private information needs to be disclosed - only the nature of the accommodation with supporting documentation from Services for Students with Disabilities (http://ssd.vt.edu).

TECHNOLOGY REQUIREMENTS

Requirement	Details
Browser	Edge, Chrome, or Firefox (current version)
Internet	Reliable connection for cloud services

Requirement	Details
Power BI Account	Free account (edu email)
Copilot Access	Provided via course lab environment

CAPSTONE PROJECT

Overview

Teams of 3-4 students will analyze the Starbucks dataset provided by the guest executive, build a Power BI solution using Copilot and AI features, and present strategic recommendations directly to the executive.

Requirements

1. **Business Problem**: Address the questions posed by the Starbucks executive
2. **AI-Generated Report**: Initial report created using Copilot prompts
3. **AI Visuals**: At least 2 AI capabilities (Key Influencers, Anomaly Detection, Smart Narratives)
4. **Executive Dashboard**: Professional visualization following design principles
5. **Strategic Recommendations**: Actionable insights based on analysis
6. **Prompt Documentation**: Record of 5-10 key prompts used

Milestones

Module	Milestone
2	Team formation and initial exploration
4	Progress check: initial Copilot-generated report
6	Draft for peer review
7	Final submission and executive presentations

Evaluation

Criterion	Weight	Description
Business Problem	20%	Clear alignment with executive's questions
AI Utilization	25%	Effective use of Copilot and AI visuals
Insight Quality	25%	Meaningful, actionable discoveries
Visualization	15%	Clear, professional design
Presentation	15%	Confident, clear communication to executive

Executive feedback will be considered (advisory) in grading.

PROMPTING JOURNAL

Each week, document:

1. **3 Prompts That Worked**: What did you ask? Why did it work?
2. **1 Prompt That Failed**: What happened? How did you recover?
3. **Key Learning**: What did you discover about effective prompting?

This journal builds your personal "prompt library" and develops metacognitive awareness of AI interaction.

CONTACT & SUPPORT

- **Professor Office Hours**: [TBD]
- **TA Office Hours**: https://aka.ms/AskFabio
- **Course Questions**: Canvas discussion board
- **Technical Issues**: Virginia Tech IT Help Desk
- **Power BI Community**: https://community.fabric.microsoft.com/

This syllabus is subject to change. Students will be notified of any modifications via Canvas announcement.

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