

DATA 4 GOOD

CASE COMPETITION

\$40,000 PRIZE

Sponsored by:



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School of Business



PrimeAI

prediction

Guard 



<https://bit.ly/2024data4good>



Welcome back!

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See updates within Pitch. Post your Questions there!

- <https://docs.apps.it.purdue.edu/Log-into-Pitch-5eb51517f5e748249ab5b3d0c54ae915>



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A screenshot of the '2024 Data for Good' competition dashboard. The page has a light gray background with a top navigation bar containing links for 'Browse Competitions', 'Competition Dashboard', and 'Reports'. Below the navigation bar, the title '2024 Data for Good' is prominently displayed. Underneath the title are three tabs: 'Case Competition' (selected), 'Teams of 3-4', and 'Analytics'. To the right of these tabs are two buttons: 'Manage Competition' and 'Manage Teams'. The main content area is divided into several sections. The first section is 'Team Registration Information', which shows a large number '238' and the text 'Teams with no submissions'. Below this is a button labeled 'Team submissions'. The second section is 'Competition Information', which contains a 'Download Rules' button and a welcome message. A red arrow points from the top right towards the 'Discussion Boards' section on the right side of the dashboard. The 'Discussion Boards' section is highlighted with a red rounded rectangle and contains a 'Competition Forum' with 18 unanswered questions and 0 active discussions. There is also an 'Announcement' button and a 'Go' button at the bottom of the forum section.

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Updates

- We have 928 student participants in 238 teams!
- Check out where you stand on the Leaderboard (<https://bit.ly/data4goodLeaderboard>)

REGION 1			REGION 2		
Rank	Team name	Total points	Rank	Team name	Total points
1	Data Swoop	2633	1	DP	2658
2	Zim Eagles	2282	2	Data Miners	2196
3	Deacon Inc	2001	3	Team #11	2167
4	Graves (Morgan State) #2	1913	4	473 Team 4	1790

REGION 3			REGION 4		
Rank	Team name	Total points	Rank	Team name	Total points
1	Spears Peers	2700	1	NECK	2700
2	BESH Consulting	2250	2	HLT Cats	2250
3	The Cowboy Coders	991	3	Rebel Coders	2154
4	Drake University	901	4	Girl Gay They	2100

Competition Points Deadlines

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Event	Quiz Link	Quiz Deadlines *	Max Team Points
Kickoff + Prediction Guard Training https://www.youtube.com/watch?v=Ff6buNO2tfQ	bit.ly/data4goodkickoff	Oct 4th	450
Prediction Guard LLM/RAGS Training https://www.youtube.com/watch?v=hgkDPjKXlb4	https://bit.ly/data4goodRAG	Oct 4th	450
AI-900 Microsoft Azure AI Fundamentals Training https://youtu.be/Z5_7O7L5j-U	bit.ly/data4goodAI900	Oct 11th	1800
Upcoming... INFORMS CAP JTA Training	bit.ly/data4goodCAPJTAs	Oct 18th	450
Upcoming... AI Ethics Training	Forthcoming...	Oct 27th	450

*Quiz deadlines are at 11:59pm EST



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Schedule your AI-900 Exams!

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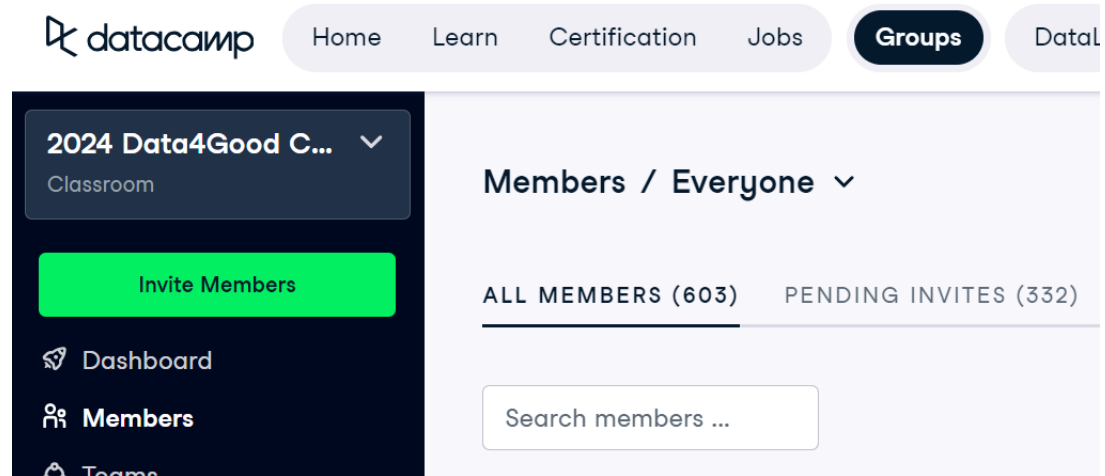
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- Don't wait until the last minute. Only certain time windows are available.
- Don't miss your opportunity to earn a great certification for your resume!



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Two thirds of participants have joined DataCamp!



Check spam/quarantine folder if you did not see the invite in your email.

Get on the Kaggle Leaderboard!

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Only 28 teams on the leaderboard
as of 10/04



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Leaderboard











Raw Data

Refresh

Search leaderboard

Public Private

This leaderboard is calculated with approximately 50% of the test data. The final results will be based on the other 50%, so the final standings may be different.

#	Team	Members	Score	Entries	Last	Join
1	BESH Consulting		0.93677	16	3d	
2	Bruin Bytes		0.92135	20	6d	
3	Purdue Data Pioneers		0.91760	14	5d	
4	BARM 4		0.90761	3	2d	
5	Group 17		0.90412	3	2h	
6	Zicklin Trio		0.89324	34	13h	
7	Spicy Coffee Makers		0.88555	4	14h	
8	Team #11		0.88393	8	3d	
9	Team 14		0.79463	2	4d	
10	Alec Walter		0.79463	1	2d	

Mark your calendars!

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- Final training event next **Friday, October 11th 3-4pm EST**
 - **AI Ethics Training with Prime AI CEO, Aaron Burciaga, CAP**



PrimeAI®



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2024 COMPETITION

INFORMS CAP / Certified Analytics Professional Training
Beverly Wright, PhD, CAP

Beverly Wright, PhD, CAP®



- VP of Data Science & AI, Wavicle Data Solutions
- Past President, INFORMS Analytics Society;
Chair INFORMS Upstate Chapter
- Chair, Technology Association of Georgia, Data
Science & AI Society
- Director, Executive Data Science Programs,
University of Georgia
- Podcast Host, TAG Data Talk
- Data Science for Good Leader and Advocate

Goals

- Motivation
- Information
- Tactical steps



Expectations

- Designation intended to measure your competency



Agenda

- Introduction
- What is CAP®
- Requirements
- Importance of Certification
- Study Guide
 - Problem and Analytics Framing
 - Methods / Techniques
 - Ethics
- Suggestions
- Next Steps





What is CAP®



Definition

- Certification –
 - Differs from certificate
 - Not a license
 - Doesn't substitute for a degree
 - Accredited by ANSI
- Verification –
 - Trusted
 - Independent
 - Tool and Vendor Agnostic
- Proves –
 - critical technical expertise
 - related soft skills
 - Super analytics and data science competency
- Possessed by –
 - accomplished analytics and data science professionals
- Valued by analytics-oriented organizations




Certified Analytics Professional

Certification Podcast Interview



The Analytics Buzz: Polly Mitchell-Guthrie, Chair of the Analytics Certification Board at INFORMS

Georgia Tech Scheller College of Business

 In playlist: Business Analytics Po...

6 years ago

Learning



<https://soundcloud.com/user-384866715/polly-mitchell-guthrie-chair-of-the-analytics-certification-board-at-informs?in=user-384866715/sets/business-analytics>

Taxonomy of Certification Types



TOOLS



TECHNIQUE /
SPECIFIC SKILLS



KNOWLEDGE

Requirements

- Education
- Experience
- EQ
- Exam
- Ethics



- 3 years of experience with MA/MS in related area
- 5 years of experience with BA/BS in related area
- 7 years of experience with any degree in unrelated analytics area

The 7 Domains of the Analytics Process



[CAP - JTA \(certifiedanalytics.org\)](https://certifiedanalytics.org)



Importance of Certification



Why Bother?

TOP 5 DATA SCIENCE CERTIFICATIONS THAT WILL PAY OFF IN YOUR CAREER

Posted on June 28, 2019



12 data science certifications that will pay off

Feature

Feb 18, 2022

Dataconomy and Analytics Insight ranked CAP first on their respective 2021 lists of “**Data science certifications that can give you an edge**” and “**Top data science certification programs.**”

Top Reasons to Achieve CAP Designation

- Employment
- Prestige
- Community
- Continuous education
- Opportunity to make a real difference
- Ethical standards



Why are other CAPs pushing me?

INFORMS advances and promotes the science and technology of decision-making to save lives, save money and solve problems.





Domain 1:

Business Problem Framing



Using 5 W's to Problem Frame

- Who: are the stakeholders who satisfy one or more of the following with respect to the project: funding, using, creating, or affected by the project's outcome.
- What: problem/function is the project meant to solve/perform?
- Where: does the problem occur? Or where does the function need to be performed? Are the physical and spatial characteristics articulated?
- When: does the problem occur, or function need to be performed? When does the project need to be completed?
- Why: does the problem occur, or function need to occur?

Other Business Framing Methods



Interview with:

Piyanka Jain

President & CEO, Aryng

B-A-D-I-R Framework
Behind Every Good Decision
TAG Data Talk

What is BADIR?



Find the real and actionable **B**usiness question

Formulate a hypothesis-driven **A**nalysis plan

Collect relevant **D**ata based on the Analysis Plan

Derive Insights using machine learning & statistics

Drive KPI's with actionable **R**ecommendation

Finding the Why-Why

- Remove the layers
- Discovery process
- Requires trust



Consider these business questions

1. “Help develop a cross-correlation by vertical and business question with our ability to get the work after making a proposal and depending on the consultant framing the work”
2. “We’re trying to figure out how to eliminate late departures for our trains.”
3. “How can we best retain our best police officers?”
4. “Our customers aren’t buying as much as they did before, and we aren’t sure why...”
5. “How can we learn ways to determine the right places to put our new stores? We don’t want to put a store somewhere that’ll turn out unsuccessful.”

Rewrites

“How can we best retain our best police officers?”

How to reduce the number of officers in the top 10% of performance ratings to be only 5% of those leaving

What factors have the greatest influence on the retention rate of high scoring officers

Rewrites

“We’re trying to figure out how to eliminate late departures for our trains.”

Do we want to create an ideal or better train schedule to maximize profit and minimize costs of operations

How are late departures measured

What is considered late

What issues happen due to late departures



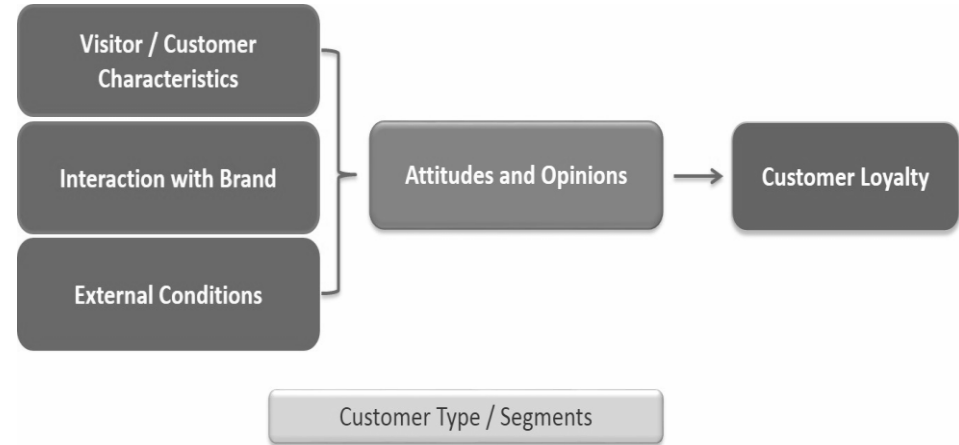
Domain 2:

Analytics Problem Framing



Take the Problem a Step Further

- Reformulate a problem statement as an analytics problem
- Develop a proposed set of drivers and relationships to inputs
- State the set of assumptions related to the problem
- Define key metrics of success
- Obtain stakeholder agreement on the approach



Let's see yours!



Domain 4:

Methodology (Approach) Selection



Steps Associated with Method Selection

1. Identify available problem-solving approaches /methods
2. Select software tools
3. Test approaches / methods
4. Select approaches / methods

First, Choose Broad Purpose

- Descriptive
- Predictive
- Prescriptive



Second, Choose Category of Techniques

- Descriptive
 - **Charts / Graphs**
 - **Statistical Summaries**
- Predictive
 - **Forecast**
 - **Simulation**
 - **Regression**
- Prescriptive
 - **Optimization**
 - **Simulation-Optimization**
 - **Stochastic Optimization**



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Third, Try to Find Most Likely Single Method

- Descriptive
 - Charts / Graphs
 - Statistical Summaries
- Predictive
 - Forecast
 - Simulation
 - Regression
 - **Logistic**
 - **Linear**
 - **Stepwise**
- Prescriptive
 - Optimization
 - Simulation-Optimization
 - Stochastic Optimization



Choose Best Method for Problem Statement

Tip: exam might show one or two methods per *category*

Ex: Help us understand how to better target volunteers to work for this nonprofit



Soft Skills / Emotional Quotient



Critical Soft Skills for Analytics Professionals

- Ability to communicate with a client/employer regarding the framing of an analytics problem
- Understanding the background of the client/employer regarding its organization and specific industry focus
- Ability to explain the findings of the analytics process in sufficient detail to ensure clear understanding by the client/employer



Let's try explaining these concepts

1. Your stakeholder wants a dashboard, but you're convinced the true problem requires more advanced methods of analysis, and you have determined from your training, research, and conversations during problem framing that neural networks are the best approach.
2. You've been tasked with understanding customer experience yet are only provided with sales data from your key client.
3. The internal stakeholder says it isn't enough to know drivers or influencers of sales decline. We need to know causes and what they can do to improve sales by 2x before next quarter.

Let's hear yours!

Your stakeholder wants a dashboard, but you're convinced the true problem requires more advanced methods of analysis, and you have determined from your training, research, and conversations during problem framing that neural networks are the best approach.

- IDEAS

Let's hear yours!

You've been tasked with understanding customer experience yet are only provided with sales data from your key client.

- IDEAS

Let's hear yours!

1. The internal stakeholder says it isn't enough to know drivers or influencers of sales decline. We need to know causes and what they can do to improve sales by 2x before next quarter.
- IDEAS



Most Common Pitfalls



Starting with Data



Not Enough Techniques



Overengineer





Next Steps



Suggestions

- Download the study guide
- Check out the resources
- Commit to 20 minutes per day, 4 days per week
- Set a timeline
- Remember you can retake the exam
- Visualize your success
- Don't go it alone!



Roadmap to Becoming a CAP

From deciding you want to be a Certified Analytics Professional to making sure you have all the necessary tools to successfully take the exam, here's all you need to know to get started on your CAP journey.

1. Application Process

The following milestones in the CAP certification application process will help you stay on the path to becoming a CAP.

1. [Create your account](#)
2. Submit your application
3. Wait for application and soft skills confirmation
4. Pay and schedule CAP exam
5. Take your exam. Good luck!

2. Gather Your Resources

The following resources will help you prepare to take the CAP exam. These can be found in the Resources section of the website.

- [Study Guide](#)
- [Practice Exam](#)
- [Analytics Body of Knowledge \(consider purchasing\)](#)
- [Job Task Analysis \(JTA\) in the CAP Handbook](#)
- [Join the CAP Discussion Forum on INFORMS Connect](#)

3. Study Tips

We asked current CAPs to share their study tips. Think about how you take tests and prepare in the way you're most comfortable.

- Develop a study timeline
- Register for a CAP Prep course
- Refer to your study guide frequently
- Refer to the Job Task Analysis for domain knowledge
- Review case studies for each domain
- Take a self-assessment of knowledge areas

4. Test-Taking Strategies

These tips will help you during the exam. Be sure to supplement these tips with strategies that worked for you in the past.

- Read each question two or three times very slowly
- Pace yourself - take short breaks if needed
- Try not to skip around
- Make sure no question is left unanswered
- Eliminate answers you know are not correct

Good Luck!



<https://bit.ly/data4goodCAPJTAs>





Thank you!

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