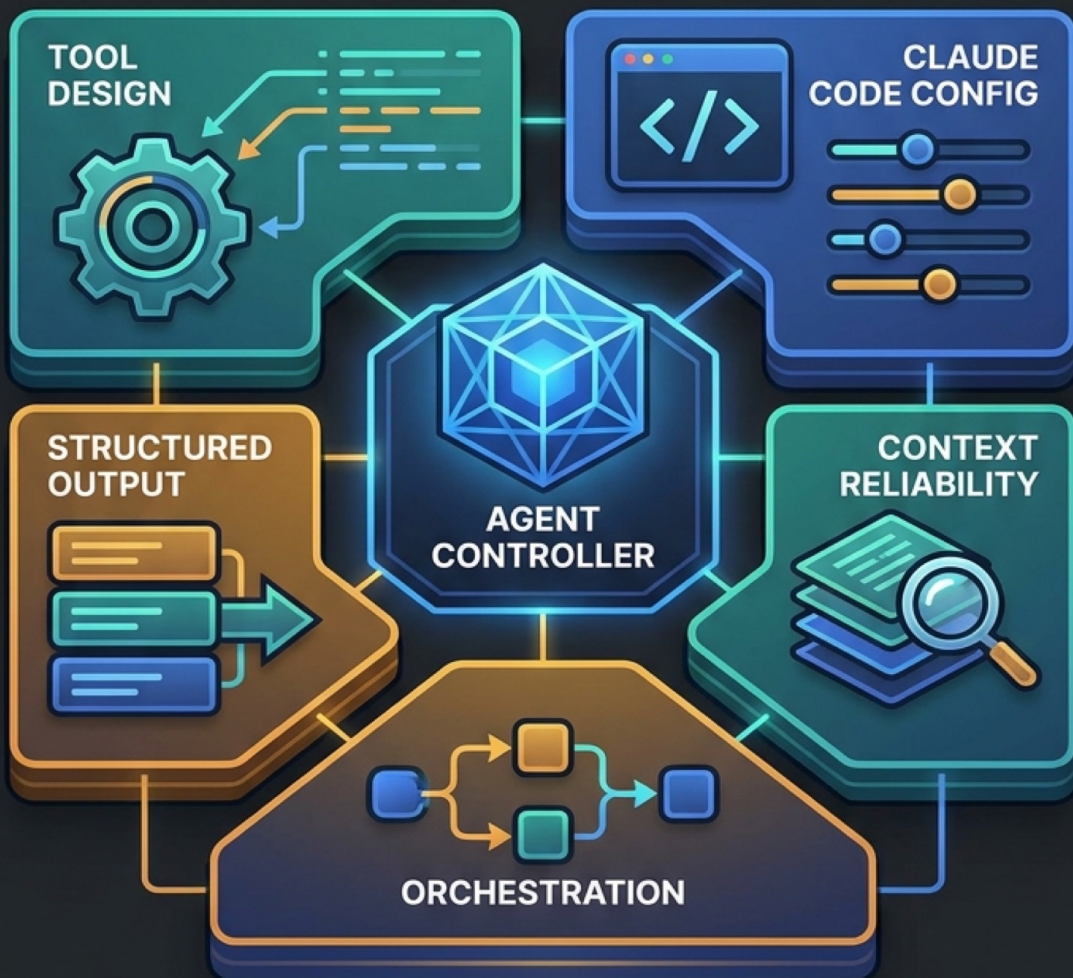


# The CCA-F Study Guide

Think like a Claude architect,  
pass the CCA-F first time



Daniel Vaughan

# The CCA-F Study Guide

Think like a Claude architect, pass the CCA-F first time

Daniel Vaughan

This book is available at <https://leanpub.com/cca-f>

This version was published on 2026-06-28



This is a [Leanpub](#) book. Leanpub empowers authors and publishers with the Lean Publishing process. [Lean Publishing](#) is the act of publishing an in-progress ebook using lightweight tools and many iterations to get reader feedback, pivot until you have the right book and build traction once you do.

© 2026 Daniel Vaughan

# Contents

<b>Copyright</b> . . . . .	<b>i</b>
<b>About the Author</b> . . . . .	<b>ii</b>
<b>Introduction</b> . . . . .	<b>iii</b>
The Exam Is a Judgement Test . . . . .	iii
Who This Book Is For . . . . .	iii
What This Book Covers, and What It Does Not . . . . .	iv
How to Use This Book . . . . .	v
<b>Chapter 1. Foundations: The Exam, the Stack, and the Scenarios</b> . . . . .	<b>1</b>
Learning Objectives . . . . .	1
What the Certification Validates . . . . .	1
The Shape of the Exam . . . . .	1
The Five Domains and Their Weightings . . . . .	1
What “Architectural Judgement” Means . . . . .	1
The Core Stack . . . . .	1
The Production Scenarios . . . . .	2
How to Study with This Book . . . . .	2
Summary . . . . .	3
Review Questions . . . . .	3
<b>Chapter 2. Agentic Architecture and Orchestration</b> . . . . .	<b>4</b>
Learning Objectives . . . . .	4
The Agentic Loop . . . . .	4
Coordinator-Subagent Orchestration . . . . .	4
Subagent Invocation and Context Isolation . . . . .	5
Multi-Step Workflows: Enforcement and Handoff . . . . .	5
Hooks for Deterministic Enforcement . . . . .	6
Task Decomposition . . . . .	6
Session State, Resumption, and Forking . . . . .	6

CONTENTS

Summary . . . . .	6
Review Questions . . . . .	6
<b>Chapter 3. Tool Design and MCP Integration . . . . .</b>	<b>7</b>
Learning Objectives . . . . .	7
The Anatomy of a Tool . . . . .	7
The Description Is the Interface . . . . .	7
Single Responsibility and Schema Guardrails . . . . .	7
Built-In Tools and the Exploration Pattern . . . . .	7
Structured Errors and Tool Reliability . . . . .	7
The Model Context Protocol . . . . .	8
Summary . . . . .	8
Review Questions . . . . .	8
<b>Chapter 4. Claude Code Configuration and Workflows . . . . .</b>	<b>9</b>
Learning Objectives . . . . .	9
The CLAUDE.md Hierarchy . . . . .	9
Skills, Slash Commands, and Plan Mode . . . . .	9
Claude Code in CI/CD . . . . .	9
Summary . . . . .	9
Review Questions . . . . .	9
<b>Chapter 5. Prompt Engineering and Structured Output . . . . .</b>	<b>11</b>
Learning Objectives . . . . .	11
Explicit Criteria and False Positives . . . . .	11
Few-Shot, Reasoning, and the Priority Order . . . . .	11
Structured Output . . . . .	11
Extraction Patterns . . . . .	11
Match the Fix to the Failure . . . . .	11
Summary . . . . .	12
Review Questions . . . . .	12
<b>Chapter 6. Context Management and Reliability . . . . .</b>	<b>13</b>
Learning Objectives . . . . .	13
The Context Window as Working Memory . . . . .	13
Trimming, Summarisation, and Persistence . . . . .	13
Reliability: Errors, Recovery, and Escalation . . . . .	13
Summary . . . . .	13
Review Questions . . . . .	13

<b>Conclusion: Exam-Day Readiness</b> . . . . .	<b>15</b>
A Domain-by-Domain Readiness Check . . . . .	15
Exam-Day Strategy . . . . .	15
A Final Word on Judgement . . . . .	15
<b>Appendix A: Answers to the Review Questions</b> . . . . .	<b>16</b>
Chapter 1. Foundations . . . . .	16
Chapter 2. Agentic Architecture and Orchestration . . . . .	16
Chapter 3. Tool Design and MCP Integration . . . . .	16
Chapter 4. Claude Code Configuration and Workflows . . . . .	16
Chapter 5. Prompt Engineering and Structured Output . . . . .	16
Chapter 6. Context Management and Reliability . . . . .	16
<b>Appendix B: Glossary</b> . . . . .	<b>18</b>
<b>Appendix C: List of Tables</b> . . . . .	<b>19</b>

# Copyright

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# About the Author

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Introduction

## The Exam Is a Judgement Test

When you build production systems with Claude, the most important thing you learn is that the hard part is almost never the feature. The features are well documented. The hard part is the decision: should this agent run a loop or a fixed pipeline, should this rule live in a prompt or in a hook, should this subagent inherit the parent's tools or a restricted subset, should this extraction step fail loudly or degrade gracefully. Get the features right and the wrong architecture, and the system is brittle. Get the architecture right and you can be hazy on a flag, because you know what the flag is for.

The Claude Certified Architect – Foundations exam is built on exactly that observation. It is not a vocabulary test. You will not be asked to recite the fields of an API request or the name of a configuration file. You will be shown a production scenario, a customer-support agent that needs to verify identity before issuing a refund, a multi-agent research system that keeps re-running searches when it should be writing, a CI pipeline that floods pull requests with false positives, and asked to choose the design that is correct, and to recognise the three plausible designs that are wrong. The exam rewards judgement, and judgement is what this book teaches.

That framing matters for how you should read this book, and how you should study. Memorising the surface of Claude Code, the Agent SDK, the Claude API, and the Model Context Protocol will not get you through. You have to understand *why* the agentic loop terminates on `stop_reason` rather than on a phrase in the model's text, *why* a coordinator passes context explicitly to a subagent instead of assuming it is inherited, *why* a refund workflow enforces identity verification in code rather than asking the model nicely. Once you understand the why, the exam's distractors become visible. They are designed to look reasonable to someone who has read the documentation but never had to live with the consequences of a wrong choice.

## Who This Book Is For

This book is written for the candidate the exam is aimed at: a solution architect, senior or staff engineer, AI engineer, or technical lead who has been building with Claude for a while and now wants the certification to prove it. The exam assumes you have hands-on experience, and so does this book. You should be able to read Python or TypeScript, you should have called an LLM API and seen a tool-use response come back, and you should have at least experimented with Claude Code or the Agent SDK. You do not need to have built a multi-agent system in anger; I will teach the architecture from first principles. But you do need to be comfortable thinking like an engineer, reasoning about state, failure, and control flow under uncertainty.

If you have never written a line against the Claude API, this is not the place to start. Spend a few weeks building something small first, then come back. The exam, and this book, are calibrated for someone who has felt the problems the patterns solve. The patterns land differently when you have already been bitten by them.

This book is not a general introduction to large language models, and it is not a prompt-engineering primer. It assumes you know what a context window is and that you can write a competent prompt. It focuses tightly on the architecture, configuration, and trade-off judgement the CCA-F tests, taught through the same production scenarios the exam uses.

## What This Book Covers, and What It Does Not

The CCA-F is organised around five weighted domains, and so is this book. After a short foundations chapter that sets up the exam and the four technologies it tests, each chapter takes one domain and works through it in the depth its weighting deserves. Agentic Architecture and Orchestration is the largest domain and gets the longest chapter; Context Management and Reliability is the smallest and gets proportionally less. That is deliberate. Your study time is finite, and the book is sized to spend it where the marks are. I have kept the chapters few and substantial rather than many and thin, so each one is a single coherent treatment of a domain you can read in one sitting.

What this book does not do is reproduce the exam. I have not seen a live question bank, and if I had I would not print it. Reproducing questions would

also be the wrong way to prepare you, because the real exam draws from a wider pool of scenarios than any leaked set could cover. What I teach instead is the transferable judgement, the mental models and anti-patterns, that lets you reason from first principles about a scenario you have never seen. That is what the certification is actually testing, and it is what will still be true when the question bank rotates.

I have also tried hard to write the current state of the tools rather than their history. Claude Code, the Agent SDK, the API, and MCP all move quickly, and a book that says “as of this release” is wrong by the time it prints. Where a surface is genuinely experimental, I mark it “at the time of writing” and tell you to check the primary documentation. Everywhere else, I describe what the tool does today and trust you to verify the specifics against the official docs, which are always more current than print.

## How to Use This Book

If you are preparing for the exam, read it cover to cover once. Work the review questions at the end of each chapter the way you would sit the exam: choose an answer, then check it against the model answers in Appendix A and work out why the other designs are wrong. The distractors are where the learning is. The exam tests your ability to reject plausible-but-incorrect designs, and the only way to build that skill is to practise rejecting them.

After the exam, keep the book as a reference. The patterns and anti-patterns it catalogues are not exam artefacts; they are the decisions you will keep making in production. The agentic loop that terminates correctly, the subagent that gets the context it needs, the workflow that enforces its prerequisites in code, these are the things that make a Claude system reliable, certificate or no certificate.

A second kind of reader will pick this book up without intending to sit the exam, wanting a structured map of how Claude’s production stack fits together. You are welcome here too. The domain structure is a good map of the territory regardless of whether you ever book a test slot.

\* \* \*

Let us begin with the exam itself: what it validates, how it is shaped, and how to plan a study path that matches where the marks actually are.

# Chapter 1. Foundations: The Exam, the Stack, and the Scenarios

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Learning Objectives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## What the Certification Validates

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Shape of the Exam

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Five Domains and Their Weightings

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## What “Architectural Judgement” Means

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Core Stack

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Claude API

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Claude Agent SDK

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Claude Code

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Model Context Protocol

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## How the Pieces Compose

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Production Scenarios

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## How to Study with This Book

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Summary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Chapter 2. Agentic Architecture and Orchestration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Learning Objectives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Agentic Loop

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Termination Rule

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Steering with `tool_choice`

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Termination Anti-Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Coordinator-Subagent Orchestration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Passing Context, with Sources

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Scoped Tools and Dynamic Selection

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Agent Teams: When Coordination Goes Peer-to-Peer

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Subagent Invocation and Context Isolation

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## What a Subagent Inherits, Exactly

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Built-in Subagents, Forks, and Nesting

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Multi-Step Workflows: Enforcement and Handoff

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Hooks for Deterministic Enforcement

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Task Decomposition

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Session State, Resumption, and Forking

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Summary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Chapter 3. Tool Design and MCP Integration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Learning Objectives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Anatomy of a Tool

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Description Is the Interface

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Single Responsibility and Schema Guardrails

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Built-In Tools and the Exploration Pattern

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Structured Errors and Tool Reliability

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Model Context Protocol

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Summary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Chapter 4. Claude Code Configuration and Workflows

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Learning Objectives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The CLAUDE.md Hierarchy

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Skills, Slash Commands, and Plan Mode

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Claude Code in CI/CD

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Summary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Chapter 5. Prompt Engineering and Structured Output

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Learning Objectives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Explicit Criteria and False Positives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Few-Shot, Reasoning, and the Priority Order

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Structured Output

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Extraction Patterns

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Match the Fix to the Failure

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Summary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Chapter 6. Context Management and Reliability

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Learning Objectives

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## The Context Window as Working Memory

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Trimming, Summarisation, and Persistence

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Reliability: Errors, Recovery, and Escalation

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Summary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## **Conclusion: Exam-Day Readiness**

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## **A Domain-by-Domain Readiness Check**

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## **Exam-Day Strategy**

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## **A Final Word on Judgement**

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Appendix A: Answers to the Review Questions

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Chapter 1. Foundations

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Chapter 2. Agentic Architecture and Orchestration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Chapter 3. Tool Design and MCP Integration

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Chapter 4. Claude Code Configuration and Workflows

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## Chapter 5. Prompt Engineering and Structured Output

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

## **Chapter 6. Context Management and Reliability**

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Appendix B: Glossary

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.

# Appendix C: List of Tables

This content is not available in the sample book. The book can be purchased on Leanpub at <https://leanpub.com/cca-f>.