

Course Overview Practice - Agent edition

Coding in an AI World (DSC 482) Lyon College, Spring 2026

Warm-up: “Too easy? Think again.” (Agent edition)

Purpose

- You already do real workflows every week.
- An agent can **only** automate what you can specify.
- If you cannot **specify** your tasks, you cannot build/use agents.
- A task specification is akin to an **algorithmic** description.
- Find where “human common sense” (**heuristics**) sneaks in, and name it.

Example (lead-in)

- **For humans:** After every class, I create review questions for the beginning of the next class using the material from that day’s session.
- **Agent issues:**
 1. What exactly counts as 'the material'? Slides? What I said out loud? Board work?
 2. How many questions should be created?
 3. What kind of questions: recall, conceptual, application?
 4. What format should they be in?
 5. How do I avoid ambiguous or misleading questions?
 6. How do I check that a question is actually correct?
- As a human, I answer all of these silently, without noticing. An agent cannot.
- This exercise is about finding those silent assumptions.
- When your explanation breaks down, **that’s the interesting part**. That’s where agents fail — and where your projects begin.

Timing (25–30 minutes total)

- 2–3 min Pick a task + pair up
- 5 min Round 1 (Speaker A → Listener B)
- 5 min Round 2 (Speaker B → Listener A)
- 3 min Silent notes (both)
- 10–15 min Debrief (whole class)

Setup (1 minute)

- Pair up.
- Each person chooses **one** task they personally do at least once a week.
- Choose tasks that involve steps (not “thinking about something”). **Examples:** paying a bill, submitting an assignment, scheduling a meeting, ordering groceries, doing laundry, checking grades, backing up files.

Rules (important)

- Speaker: Explain the task as if the listener must **automate it tomorrow**.
- Listener: You may **only** ask clarifying questions.
- Listener must interrupt whenever a step could not be executed **exactly as stated**.

Round 1 (5 minutes)

- Speaker A explains their weekly task.
- Listener B asks only clarifying questions:
 - “What does ‘done’ mean here?”
 - “What’s the input? What’s the output?”
 - “Where does the information come from?”
 - “What do you do if X is missing / fails / is late?”
 - “How do you decide between option A vs B?”

Switch (5 minutes)

- Swap roles and repeat.

Silent reflection (3 minutes, individual writing)

Write short answers (bullet points are fine):

1. Where did the explanation break down (the first “wait—what?” moment)?
2. What did you assume the other person already knew?
3. Which parts relied on judgment rather than rules?
4. Where did words like “just,” “normally,” or “obvious” appear?
5. If this were an AI agent, what would it do wrong **first**?
6. What would you need to add to make the task repeatable?

Debrief (10–15 minutes)

- Give examples, from your session, for:
 - a “breakdown point”
 - an assumption
 - a judgment call
 - a vague word (“just/normal/obvious”)

Agent bridge

- A chatbot answers questions.
- An **agent** takes a goal, plans steps, uses tools, keeps state, and acts.
- Agents fail exactly where humans rely on:
 - unstated context
 - vague language
 - judgment without criteria
 - missing error-handling

One-minute takeaway (tie to agent projects)

- Your project (option 1) is: take a real workflow and turn it into:
 1. **steps** (plan)
 2. **state** (what to remember)
 3. **inputs/outputs** (what changes)
 4. **verification** (how we know it worked)

...so that an agent can run it without guessing.

One-minute takeaway (for research projects)

If you choose the research project instead of building an agent, this exercise still applies directly to your work.

Research also relies on silent assumptions:

1. what counts as relevant evidence
2. which sources are trustworthy
3. what level of rigor is “enough”
4. how conclusions are justified
5. how uncertainty is handled

When you explain your research task and it breaks down, that breakdown marks:

- an unclear research question
- an unstated methodological choice
- a hidden evaluation criterion

AI systems tend to expose these weak points because they cannot “fill in the gaps” the way humans do.

For a research project, your goal is not to automate the task, but to **make the reasoning explicit**:

- define terms
- state assumptions
- justify choices
- show how claims are checked

If an agent would struggle to follow your instructions, a reader likely would too.

That’s why this exercise matters, regardless of which project option you choose.

Author: Marcus Birkenkrahe

Created: 2026-01-31 Sat 16:24