Cultural Dissemination Project – Detailed Execution Plan

Based on: Cultural Dissemination: An Agent-Based Model with Social Influence (JASSS 2021)

Week 1 – Axelrod Baseline (Daily Micro-Targets)

- Day 1: Implement grid + one turtle per patch.
- Day 2: Initialize F features, Q traits.
- Day 3: Implement similarity and interaction probability.
- Day 4: Implement trait copying rule.
- Day 5: Implement absorbing state detection.
- Day 6: Add visualization (color by culture).
- Day 7: Validate with small test runs.

Week 2 – Social Influence Implementation

- Day 1: Implement neighborhood trait counts.
- Day 2: Add switching probability $Q(i,j)$.
- Day 3: Replace deterministic copying with probabilistic switching.
- Day 4: Debug absorbing behavior.
- Day 5: Compare baseline vs social influence.
- Day 6–7: Run 10–20 trial validation experiments.

Week 3 – Replication Experiments

- Experiment 1: Reproduce Table 1 (30x30, F=5, Q=10).
- Experiment 2: Lattice size sweep (5–40).
- Experiment 3: Time to absorbing state.
- Experiment 4: Zone size distribution histogram.
- Average over 30–50 runs each.

Week 4 – Extension: Stubborn Agents

- Add stubborn agent variable.
- Parameter sweep: stubborn_fraction $\in$ [0, 0.4].
- Measure frozen zones, largest zone size, absorption time.
- Compare extension vs baseline.

Risk Checklist

- Incorrect absorbing state detection.
- Zone counting algorithm errors.
- Insufficient averaging (noisy results).
- Overfitting to single run behavior.
- Late start on experiments.

Grading Strategy

- Clear replication of published results.
- Systematic parameter sweeps.
- Well-labeled plots and averaged data.
- Strong conceptual explanation of mechanisms.
- Clear comparison between models.

Experimental Results Table Template

Model	Grid Size	F	Q	Frozen Zones (avg)	Largest Zone (%)	Events	Interactions
Axelrod							
Social Influence							
Extension (Stubborn)							