

Prep Time	20 minutes
Cook Time	25 minutes
Total Time	45 minutes
Difficulty Level	Medium
Skill Level	Intermediate (Requires roux control and temperature monitoring)
Servings	8 generous portions

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Key Culinary Secrets for Success

1. Grate Your Own Cheese: Pre-shredded packaged cheeses are coated with anti-caking agents like potato starch or cellulose. These additives prevent the cheese from melting smoothly, resulting in a grainy sauce. Buying block cheese and grating it fresh ensures a silky texture.
2. Under-boil the Pasta: Boil your elbow macaroni 2 minutes short of the package instructions for *al dente*. The pasta will continue to absorb liquid and cook while baking

in the oven.

3. Warm the Milk: Adding cold milk to a hot butter-flour roux can cause clumping. Slightly warming the milk or bringing it to room temperature ensures a smooth, glossy emulsion.
4. Layer for Maximum Cheese Pull: Don't just pour the cheese sauce over the pasta; layer half the pasta, add a layer of shredded cheese, and top with the rest of the pasta and sauce before baking.

Ingredients List

Pasta Base

- 16 oz (450g) Elbow Macaroni (or cavatappi / pipe rigate)
- 1 tbsp Salt (for pasta boiling water)

Creamy Cheese Sauce (Mornay)

- 1/2 cup (115g) Unsalted Butter
- 1/2 cup (60g) All-Purpose Flour
- 3 cups (710ml) Whole Milk (warmed)

- 1 cup (240ml) Heavy Cream (warmed)
- 3 cups (300g) Sharp Yellow Cheddar Cheese (freshly grated, divided)
- 2 cups (200g) Gruyère Cheese (or Monterey Jack, freshly grated, divided)
- 1/2 cup (50g) Parmesan Cheese (finely grated)

Seasoning Blend

- 1/2 tsp Garlic Powder
- 1/2 tsp Onion Powder
- 1/4 tsp Paprika (smoked or sweet)
- 1/4 tsp Cayenne Pepper (optional, for subtle background warmth)
- 1/2 tsp Freshly Ground Black Pepper
- 1 tsp Kosher Salt (adjust to taste)
- 1/2 tsp Dijon Mustard (enhances sharp cheese flavor without tasting like mustard)

Crispy Topping (Optional but Recommended)

- 1 cup Panko Breadcrumbs
- 2 tbsp Unsalted Butter (melted)
- 1/4 cup Parmesan Cheese (grated)

Step-by-Step Cooking Instructions

1. Prep Work & Oven Preheating: Prerequisite Setup.

- Preheat your oven to 375°F (190°C) with the rack positioned in the center.
- Lightly grease a 9×13-inch (3-quart) baking dish with butter or non-stick cooking spray.
- Freshly grate all cheeses on a box grater and toss them together in a large bowl. Divide into two equal portions: one portion for the sauce and one portion for layering/topping.

2. Boil the Pasta: Intensity: High Heat | Time: 6–7 mins.

- Bring a large pot of water to a rolling boil over High Heat.

- Add 1 tbsp of salt to the water.
- Stir in the elbow macaroni and cook for approximately 6 to 7 minutes (around 2 minutes under the package's *al dente* recommendation).
- Drain the pasta immediately in a colander. Rinse briefly under lukewarm water to stop the cooking process and prevent sticking, then set aside.

3. Build the Roux Base: Intensity: Medium Heat | Time: 3–4 mins.

- In a large Dutch oven or heavy-bottomed saucepan, melt 1/2 cup butter over Medium Heat.
- Once melted and bubbling gently, sprinkle in 1/2 cup all-purpose flour.
- Whisk constantly for 2 to 3 minutes. The mixture will foam and turn a pale golden color with a nutty aroma. Cooking the roux properly removes the raw flour taste.

4. Whisk in Liquids & Seasonings: Intensity: Medium to Low Heat | Time: 5–7 mins.

- Slowly pour in the warm whole milk and heavy cream in a steady stream while whisking continuously to prevent lumps from forming.
- Add Dijon mustard, garlic powder, onion powder, paprika, cayenne pepper, salt, and

black pepper.

- Continue cooking over Medium Heat, stirring frequently with a wooden spoon or whisk, until the sauce thickens enough to coat the back of a spoon (about 5 to 7 minutes).

5.Melt Cheese into Sauce:Intensity: Off Heat | Time: 2 mins.

- Turn off the heat completely and move the pot away from the hot burner.
- *Crucial step:* Adding cheese to boiling sauce can cause the fats to separate, making the sauce greasy.
- Add the first half of the grated cheese mixture and the 1/2 cup of Parmesan in three batches, stirring gently after each addition until completely melted and smooth.

6.Combine Pasta and Cheese Sauce:Assembly.

- Add the drained pasta directly into the pot with the cheese sauce.
- Fold gently using a spatula until every piece of macaroni is evenly coated in sauce.

7.Layer in Baking Dish:Assembly.

- Pour half of the mac and cheese mixture into the prepared 9×13-inch baking dish.
- Sprinkle half of the reserved grated cheese evenly over the middle layer.
- Pour the remaining mac and cheese mixture over the top, spreading it out evenly.
- Top with the remaining reserved cheese.
- *Optional Topping:* Toss Panko breadcrumbs with melted butter and 1/4 cup Parmesan in a small bowl, then sprinkle over the top layer.

8. Bake to Golden Perfection: Intensity: 375°F (190°C) | Time: 20–25 mins.

- Place the dish in the preheated oven and bake uncovered for 20 to 25 minutes until the edges are bubbly and the cheese on top is fully melted and lightly golden brown.
- For an extra crispy crust, turn on the oven Broil (High) for the last 1 to 2 minutes, watching closely to prevent burning.
- Remove from the oven and let rest for 10 minutes before serving. This allows the sauce to set to the ideal creamy consistency.

Cooking Intensities Summary

- Boiling Pasta: High Heat (Rolling Boil)
- Roux Creation: Medium Heat (Gently Bubbling)
- Sauce Thickening: Medium-Low Heat (Gentle Simmer)
- Cheese Melting: Off Heat (Residual Heat Only)
- Baking: Medium-High Oven Heat (375°F / 190°C)

Storage & Reheating Instructions

- Refrigeration: Store leftovers in an airtight container in the refrigerator for up to 4 days.
- Freezing: Assemble the dish up to the baking step, wrap tightly in aluminum foil, and freeze for up to 3 months. Thaw overnight in the fridge before baking.
- Reheating: Reheat individual portions in the microwave with a splash of milk to restore creaminess. For larger portions, bake covered with foil at 350°F (175°C) for 15-20 minutes.

Nutritional Information

Values are estimates per serving based on 8 equal portions.

Nutrient	Amount per Serving	% Daily Value*
Calories	620 kcal	31%
Total Fat	38 g	49%
- Saturated Fat	23 g	115%
- Trans Fat	1 g	—
Cholesterol	115 mg	38%
Sodium	820 mg	36%
Total Carbohydrates	46 g	17%
- Dietary Fiber	2 g	7%
- Total Sugars	5 g	—
Protein	24 g	48%
Calcium	520 mg	40%
Iron	1.8 mg	10%
Potassium	240 mg	5%