# ISE 3230
# A Balanced Meal in College

Group Members: Yahui Zhou, Maxine Xu, Jike Zhong

12/06

**Motivation**

# Assumptions

✓ 🎓 **Student** in the Ohio State University (O-H-I-O!)

✓ ⚖ **Balanced Nutrition** based on personal needs

(Height / Weight / Gender / Age / Meal Type/ Activity Level)

✓ 🍽 Meal at the **grain bowl station** in the Union Market (priced by weight)

⬇ 💵 Minimize total **price** of the meal

# union MARKET

## $9.50 PER POUND

## GRAIN BOWL

**1. Choose your base:**
Quinoa (G)(V)  Thai Red Quinoa (G)(V)  Brown Rice (G)(V)

**2. Add toppings:**

| Hot Toppings | Cold Toppings |
|---|---|
| Chipotle Chicken (G) | Chili Roasted Broccoli (G)(V) |
| Tofu Sofritas (G)(V) | Tamari Kale (G)(V) |
| Seared Salmon (G) | Corn (G)(V) |
| Chipotle Sweet Potatoes (G)(V) | Tikka Cauliflower (G)(V) |
| | Pickled Red Onion (G)(V) |

**3. Finish with sauce:**
Harissa Sauce (G)(Vg)  Peruvian Pesto Aioli (G)(Vg)
Cilantro Chutney (G)(V)  Tamari (G)(V)

THE OHIO STATE UNIVERSITY  OFFICE OF STUDENT LIFE

# Ohio Union Operations - DAILY MENU - Union Market

**Back**　　🍎 **Item Nutrition**　　⊕ **Add Items**

💙 Meal Nutrition

🛒 Clear My Meal

| Item Name | Serving Size | # of Serv |
|---|---|---|
| **BAKED POTATO BAR** | | |
| ☐ Baked Potato | Order | 1 ∨ |
| ☐ Butter Cup | Each | 1 ∨ |
| ☐ Cheese - Cheddar Shredded | Ounce | 1 ∨ |
| **GRAIN BOWL** | | |
| ☐ Brown Rice | 6 Oz Serving | 1 ∨ |
| ☐ Chili Roasted Broccoli | Ounce | 1 ∨ |
| ☐ Chipotle Chicken | 3 Oz. Serving | 1 ∨ |
| ☐ Chipotle Sweet Potatoes | Ounce | 1 ∨ |
| ☐ Cilantro Chutney | Ounce | 1 ∨ |
| ☐ Corn - Yellow | Ounce | 1 ∨ |
| ☐ Harissa Sauce | Ounce | 1 ∨ |
| ☐ Peruvian Pesto Aioli | Ounce | 1 ∨ |
| ☐ Quinoa | 6 Oz. Serving | 1 ∨ |
| ☐ Quinoa Thai Curry Blend With Vegetables | 6 Oz. Serving | 1 ∨ |
| ☐ Pickled Red Onion | Ounce | 1 ∨ |
| ☐ Sauce - Tamari Gluten Free | Ounce | 1 ∨ |
| ☐ Seared Salmon | Each | 1 ∨ |
| ☐ Tamari Marinated Kale | Ounce | 1 ∨ |
| ☐ Tikka Cauliflower | Ounce | 1 ∨ |
| ☐ Tofu Sofritas | 4 Oz. Serving | 1 ∨ |

## I Am Allergic To...

- ☐ Ⓓ Dairy
- ☐ 🥚 Eggs
- ☐ 🐟 Fish
- ☐ 🍝 Gluten
- ☐ Ⓝ Peanuts
- ☐ 🦀 Shellfish
- ☐ 🌱 Soy
- ☐ Ⓝ Tree Nuts
- ☐ 🌾 Wheat

## My Diet Preference

- ☐ Ⓥ Vegan
- ☐ Ⓥ Vegan (Order No Cheese)
- ☐ Ⓥ𝓰 Vegetarian

⊖ Clear Filters

---

**Brown Rice**　　❌ Close

# Nutrition Information

1 Servings Per Container

Serving Size ~~6 Oz Serving (170g)~~

**Amount Per Serving**

## Calories　230

| | % Daily Value* |
|---|---|
| **Total Fat** 1.5g | **2%** |
| Saturated Fat 0g | **0%** |
| *Trans* Fat 0g | |
| **Cholesterol** 0mg | **0%** |
| **Sodium** 0mg | **0%** |
| **Total Carbohydrate** 49g | **16%** |
| Dietary Fiber 1g | **6%** |
| Total Sugars 0g | |
| **Protein** 5g | |
| | |
| Calcium 3.06mg | 0% |
| Iron 3.09mg | 15% |
| Vitamin C 0mg | 0% |

* The % Daily Value (DV) Tells You How Much A Nutrient In A Serving Of Food Contributes To A Daily Diet. 2000 Calories A Day Is Used For General Nutrition Advice.

**Ingredients:** WATER, DRY LONG GRAIN BROWN RICE(PARBOILED LONG GRAIN BROWN RICE)

| Category | Food | Size | nutrition information | | | |
|---|---|---|---|---|---|---|
| | | | Calories | Fat | Total Carb | Protein |
| Carb | Brown Rice | Ounce | 38.33 | 0.25 | 8.17 | 0.83 |
| | Chipotle Sweet Potatoes | Ounce | 24.57 | 0.03 | 5.71 | 0.46 |
| | Quinoa | Ounce | 33.33 | 0.58 | 5.83 | 1.33 |
| | Quinoa Thai Churry Blend With Vegetables | Ounce | 31.67 | 1 | 4.33 | 1 |
| | Corn - Yellow | Ounce | 25 | 0 | 6 | 0 |
| Protein | Chipotle Chicken | Ounce | 43.33 | 1.67 | 0.33 | 6 |
| | Seared Salmon | Each | 440 | 34 | 0 | 33 |
| | Tofu Sofritas | Ounce | 35 | 2 | 1.25 | 3 |
| Veggies | Chili Roasted Broccoli | Ounce | 20 | 1 | 1 | 0 |
| | Tamari Marinated Kale | Ounce | 10 | 0 | 1 | 0 |
| | Tikka Cauliflower | Ounce | 25 | 2 | 2 | 0 |
| | Pickled Red Onion | Ounce | 15 | 0 | 3 | 0 |
| Sauce | Sauce - Harissa Sauce | Ounce | 30 | 1 | 5 | 0 |
| | Sauce - Peruvian Pesto Aioli | Ounce | 25 | 1 | 5 | 0 |
| | Sauce - Cilantro Chutney | Ounce | 20 | 1.5 | 2 | 2 |
| | Sauce - Tamari Gluten Free | Ounce | 15 | 0 | 2 | 3 |

# Sample result

## Buckeyes



- Female
- 19 years old
- 155 cm tall
- 42 kg
- Lightly active
- Meal: dinner

## Brutus



- Male
- 22 years old
- 185 cm tall
- 90 kg
- Very active
- Meal: lunch

Imaged by Heritage Auctions, HA.com
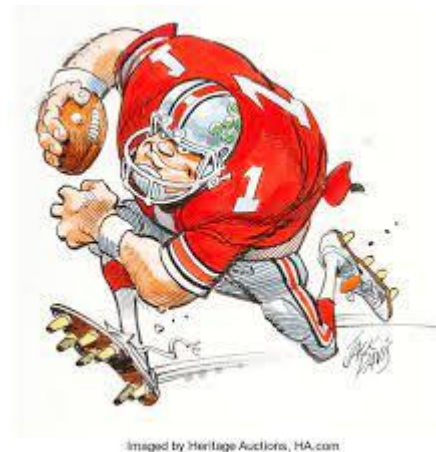
# Sample result - Buckeyes





Female  |  19 years old  |  155 cm tall  | 42 kg

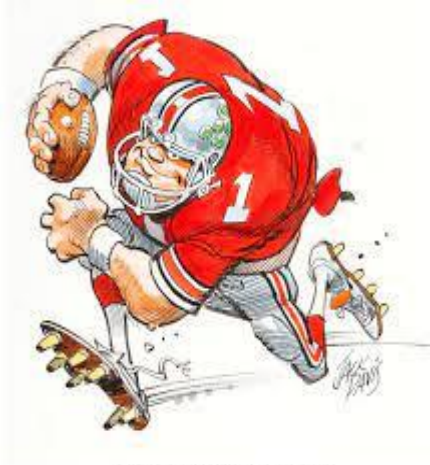Lightly active

Meal: dinner

**Calories:**  434 kcal

**Price (without dining dollar) :** $ 7.36

**Price (with dining dollar):** $4.78

**Recommended meals:**

– Brown Rice: 3.75 ounce

– Chipotle Chicken: 4.64 ounce

– Tikka Cauliflower: 2.94 ounce

– Pickled Red Onion: 1.06 ounce

# Sample result - Brutus



Imaged by Heritage Auctions, HA.com

Male  |  22 years old  |  185 cm tall  | 90 kg

Very active

Meal: lunch

**Calories:**  1324 kcal

**Price (without dining dollar) :** $ 19.06

**Price (with dining dollar):** $12.39

**Recommended meals:**

– Brown Rice: 12.85 ounce

– Chipotle Chicken: 7.66 ounce

– Seared Salmon: 1 piece

– Pickled Red Onion: 4 ounce

# If we had more time …

- Choose the station / restaurant

- Consider sleep / stress / allergy factors

- Consider bulking and cutting requirements

- Plan different meals for a week

# References:

Net Nutrition:

https://dining.osu.edu/NetNutrition/1#

Equation for Calories:

https://www.thejakartapost.com/life/2016/09/27/how-to-calculate-your-ideal-calorie-intake.html

Calories per gram for carbohydrate, protein, and fat:

https://www.nal.usda.gov/programs/fnic#:~:text=How%20many%20calories%20are%20in,provides%209%20calories%20per%20gram.\

Meal calories percentage:

https://www.omnicalculator.com/health/meal-calorie#:~:text=25%2D30%25%20of%20daily%20calories,of%20daily%20calories%20for%20dinner

Harris-Benedict Calculator :

https://www.omnicalculator.com/health/bmr-harris-benedict-equation

Activity level multiplier:

https://www.k-state.edu/paccats/Contents/PA/PDF/Physical%20Activity%20and%20Controlling%20Weight.pdf