

## Independent Electoral Systems Researcher

### Ghana Electoral College Simulator - User Guide

#### Getting Started

##### Accessing the Simulator

1. **Visit the Website:** Go to <https://ghelectoralcollege.com>
2. **Login Required:** You'll need valid credentials to access the simulator
3. **Request Access:** If you don't have login credentials, contact [info@ghelectoralcollege.com](mailto:info@ghelectoralcollege.com)
  - o Include your name, institution/organization, and intended use for access

##### Understanding the Interface

Once logged in, you'll see:

- **Header Section:** Title, research paper link, instructions, and disclaimer
  - **Control Buttons:** Candidate selection and reset options
  - **Three Tabs:** Regional Allocation, Constituency Allocation, and Compare Results
  - **Logout Button:** To exit the simulator
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#### Tab 1: Regional Allocation

##### Purpose

This tab demonstrates a simplified winner-takes-all system where selecting a candidate for a region gives them ALL electoral votes from that region.

##### How to Use

1. **Select a Candidate:** Click on "Candidate A", "Candidate B", or "None" buttons
2. **Allocate Regions:** Click on any region card to assign all its electoral votes to the selected candidate
3. **Visual Feedback:** Selected regions will show colored borders and background
4. **View Results:** The right panel shows real-time vote counts and percentages
5. **Winner Declaration:** Automatically announces when a candidate reaches 138+ votes

## Key Features

- **Instant Feedback:** See results update immediately as you make selections
- **Color Coding:** Blue for Candidate A, Orange for Candidate B
- **Vote Totals:** Each region card shows the number of constituencies (electoral votes)
- **Majority Threshold:** 138 out of 275 electoral votes needed to win

## Example Scenario

- Click "Candidate A" button
  - Click on "Greater Accra" region → Candidate A gets all 34 electoral votes
  - Click on "Ashanti" region → Candidate A gets all 47 electoral votes
  - Continue until one candidate reaches 138+ votes
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## Tab 2: Constituency Allocation

### Purpose

This tab reflects the actual research proposal where each individual constituency awards one electoral vote, allowing for split results within regions.

### How to Use

1. **Select Regions:** Each region card shows input fields for both candidates
2. **Enter Vote Numbers:** Type the number of constituencies each candidate wins
3. **Automatic Validation:** System prevents over-allocation beyond available constituencies
4. **Monitor Unallocated:** See remaining unallocated constituencies for each region
5. **View Totals:** Right panel shows cumulative results across all regions

### Important Rules

- **Maximum Limit:** Cannot allocate more constituencies than available in each region
- **Auto-Adjustment:** If you exceed the limit, the system automatically adjusts other allocations
- **Realistic Scenarios:** Reflects how elections actually work at constituency level

### Example Scenario: Greater Accra (34 constituencies)

- Enter "18" for Candidate A → Candidate A gets 18 electoral votes
- Enter "16" for Candidate B → Candidate B gets 16 electoral votes
- Unallocated shows "0" constituencies remaining
- Total regional result: A=18, B=16 (instead of all 34 to one candidate)

### Tips for Realistic Simulation

- **Urban vs Rural:** Consider that urban regions might split differently than rural ones
  - **Population Centers:** Larger regions like Ashanti (47) and Greater Accra (34) have more impact
  - **Marginal Regions:** Small regions like North East (6) or Ahafo (6) can be decisive in close elections
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### Tab 3: Compare Results

#### Purpose

This tab provides side-by-side analysis of how different allocation methods affect election outcomes.

#### How to Use

1. **Set Up Both Tabs First:** Allocate votes in both Regional and Constituency tabs
2. **Switch to Compare:** Click the "Compare Results" tab
3. **Review Analysis:** Read the automated comparison and implications
4. **Understand Differences:** See how allocation method impacts final results

#### What You'll See

- **Side-by-Side Results:** Vote totals from both allocation methods
- **Winner Comparison:** May show different winners depending on allocation method
- **Vote Differences:** Numerical difference between the two approaches
- **Impact Analysis:** Explanation of what the differences mean

#### Key Insights

- **Close Elections:** Small differences in allocation method can change outcomes
  - **Regional Dominance:** Winner-takes-all favors candidates with strong regional bases
  - **Constituency Balance:** Proportional allocation rewards broader appeal within regions
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## Understanding Ghana's Electoral Framework

### Current System vs Proposed System

#### Current System (50%+1):

- Nationwide popular vote
- Must win majority of all votes cast
- Run-off election if no majority
- Winner-takes-all nationally

#### Proposed Electoral College (275 constituencies):

- Each constituency = 1 electoral vote
- Candidate needs 138+ electoral votes to win
- No run-off elections needed
- Promotes regional representation

### Regional Breakdown

Ghana's 16 regions with their constituency counts:

- **Ashanti:** 47 constituencies (largest)
- **Greater Accra:** 34 constituencies
- **Eastern:** 33 constituencies
- **Central:** 23 constituencies
- **Northern:** 18 constituencies
- **Volta:** 18 constituencies
- **Western:** 17 constituencies

- **Upper East:** 15 constituencies
  - **Bono:** 12 constituencies
  - **Bono East:** 11 constituencies
  - **Upper West:** 11 constituencies
  - **Western North:** 9 constituencies
  - **Oti:** 8 constituencies
  - **Savannah:** 7 constituencies
  - **North East:** 6 constituencies (smallest)
  - **Ahafo:** 6 constituencies (smallest)
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## **Educational Scenarios to Try**

### **Scenario 1: Urban vs Rural Divide**

- **Regional Mode:** Give Candidate A all urban regions (Greater Accra, Ashanti)
- **Constituency Mode:** Split urban regions while giving Candidate B rural regions
- **Compare:** See how constituency-level competition affects urban dominance

### **Scenario 2: Close National Election**

- **Goal:** Create a scenario where both candidates are close to 138 votes
- **Regional Mode:** Alternate regional wins between candidates
- **Constituency Mode:** Create competitive splits within each region
- **Compare:** Observe how allocation method affects close elections

### **Scenario 3: Regional Powerhouse**

- **Regional Mode:** Give one candidate the three largest regions (Ashanti, Greater Accra, Eastern)
- **Constituency Mode:** Split these large regions more competitively
- **Compare:** See how constituency allocation limits regional dominance

### **Scenario 4: Northern Strategy**

- **Focus:** Northern and Upper regions (traditionally different political dynamics)

- **Test:** How many northern regions needed to offset southern losses
  - **Compare:** Regional vs constituency allocation in geographically diverse scenarios
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## Tips for Effective Use

### For Educators

1. **Start Simple:** Begin with Regional allocation to explain the concept
2. **Progress Gradually:** Move to Constituency allocation for realism
3. **Use Comparisons:** Always show both methods to highlight differences
4. **Create Scenarios:** Design specific scenarios that illustrate key points
5. **Discuss Implications:** Use the analysis to discuss democratic representation

### For Researchers

1. **Test Edge Cases:** Try scenarios with very close margins
2. **Geographic Analysis:** Consider how different regional coalitions perform
3. **Sensitivity Testing:** Small changes in constituency allocation can have large effects
4. **Documentation:** Use the comparison analysis for research documentation
5. **Multiple Scenarios:** Run various scenarios to understand system behavior

### For Students

1. **Read the Research Paper:** Start with the linked PDF for background
  2. **Experiment Freely:** Try different combinations to see what happens
  3. **Ask Questions:** Why do different methods produce different results?
  4. **Take Screenshots:** Capture interesting scenarios for presentations
  5. **Discuss Results:** Share findings with classmates or study groups
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## Troubleshooting

### Common Issues

**Problem:** Simulator not loading after login

- **Solution:** Check browser console for errors, try refreshing the page

- **Alternative:** Try a different browser (Chrome, Firefox, Safari)

**Problem:** Numbers not updating in Constituency mode

- **Solution:** Make sure you're entering valid numbers within the constituency limits
- **Check:** Verify total allocations don't exceed regional maximums

**Problem:** Compare tab showing "no data"

- **Solution:** Make sure you've allocated votes in both Regional and Constituency tabs first
- **Reset:** Use "Reset All" button and try again

**Problem:** Cannot access certain features

- **Solution:** Ensure you're logged in with valid credentials
- **Contact:** Email [info@ghelectoralcollege.com](mailto:info@ghelectoralcollege.com) for support

### Browser Compatibility

- **Recommended:** Chrome, Firefox, Safari (latest versions)
- **Mobile:** Fully responsive design works on tablets and phones
- **JavaScript:** Must be enabled for simulator to function

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### Frequently Asked Questions

**Q: Is this an official government tool?** A: No, this is an educational simulator based on academic research. It's for learning purposes only.

**Q: Can I use this for my research/class?** A: Yes! That's exactly what it's designed for. Please cite the research paper appropriately.

**Q: How accurate are the constituency numbers?** A: The constituency counts are based on Ghana's current parliamentary structure as of 2024.

**Q: Can I save my scenarios?** A: Currently, scenarios are not saved between sessions. Take screenshots for documentation.

**Q: Why do I need to log in?** A: The login system ensures responsible use and helps us understand how the tool is being used for educational purposes.

**Q: Can I suggest improvements?** A: Absolutely! Contact us at [info@ghelectoralcollege.com](mailto:info@ghelectoralcollege.com) with suggestions.

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## Contact and Support

### Technical Support

- **Email:** info@ghelectoralcollege.com
- **Response Time:** 1-2 business days
- **Include:** Screenshot of any issues, browser type, and steps to reproduce

### Academic Inquiries

- **Research Questions:** Contact the research team through the same email
- **Collaboration:** We welcome academic collaboration and feedback
- **Citations:** Please cite the research paper when using this tool in academic work

### Access Requests

When requesting access, please include:

- Your full name
- Institution or organization
- Intended use (research, teaching, learning)
- Expected duration of use

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## Version Information

**Current Version:** 1.0 **Last Updated:** January 2025 **Compatibility:** All modern web browsers

**Mobile Support:** Yes, fully responsive

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*This simulator is based on the research paper "Proposal for an Electoral College System in Ghana: Aligning with Parliamentary Constituencies" and is designed for educational and research purposes only.*