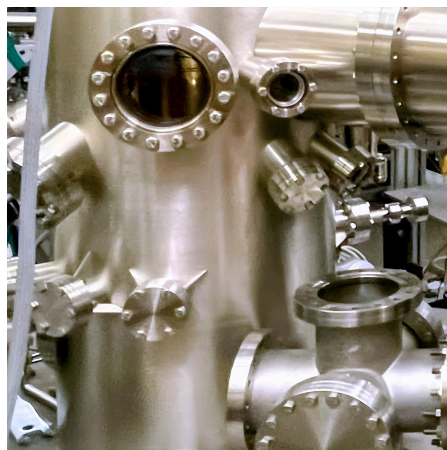
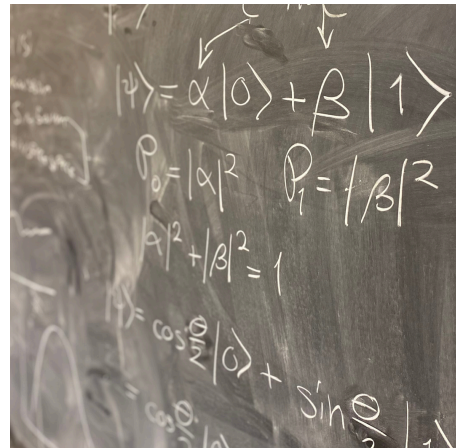
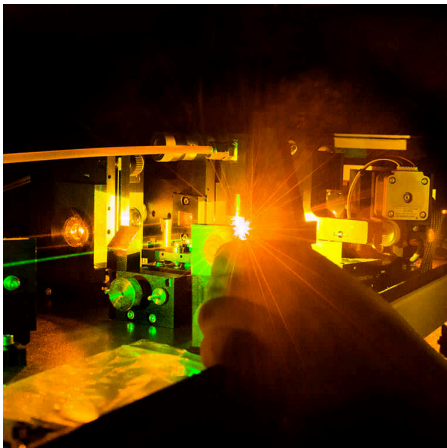
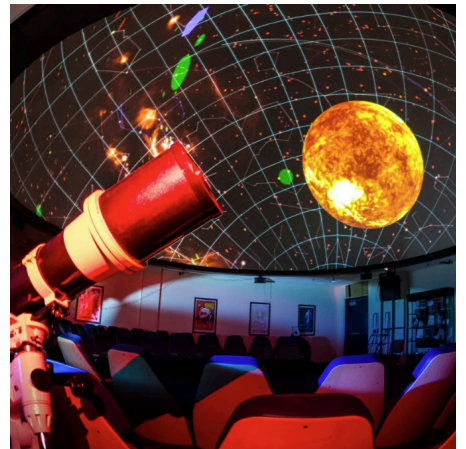
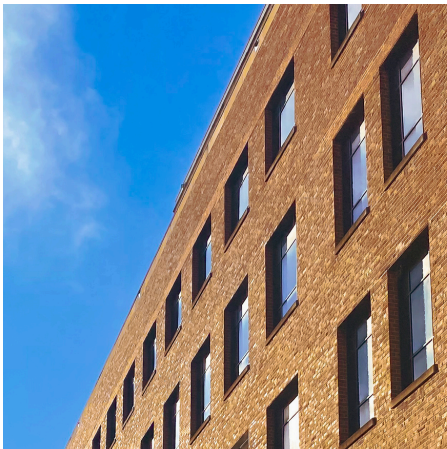




West Virginia University  
DEPARTMENT OF PHYSICS AND ASTRONOMY

# SPRING 2025 GRADUATE STUDENT VISIT DAY



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## **SOCIAL MEDIA**

**Facebook:** West Virginia University,  
WVU Department of Physics and  
Astronomy

**Instagram:** @wvuphysastro,  
@wvupagso

**Linktree:** [linktr.ee/wvuphysastro](https://linktr.ee/wvuphysastro)

## **GENERAL ITINERARY**

Scan the QR Code for a copy of the  
general itinerary. Faculty meeting times  
will be provided separately.





# **NOTES**





# WELCOME TO WVU

**We would like to welcome you to our university in the mountains! We are proud to have WVU on your short list of graduate schools.**

We hope that your visit here is productive and that you get the chance to enjoy Morgantown and its beautiful surroundings. In addition to helpful links and degree information, you'll find listings for restaurants, pubs, events, and local attractions within this guide. Once you've had your fill of science, perhaps you would also enjoy a tour of the Department of Physics and Astronomy in historic White Hall, built in 1940 and renovated in 2012. Whatever you get into during your downtime here at WVU, we wish you a pleasant stay.

## ***A closer look at Mountaineer Physics and Astronomy...***

- We offer undergraduate (B.S., B.A.) and advanced degrees (M.S., Ph.D.) in Physics.
- We are home to six active research areas: Astronomy and Astrophysics; Condensed Matter Physics; Medical Physics; Optical and Laser Physics; Physics Education Research; and Plasma and Space Physics.
- We have 31 full-time faculty, over a dozen post-doctoral researchers, 9 staff members, and over 80 graduate students.
- Our researchers enjoy access to in-house machine and electronics shops, high performance computational facilities, rooftop optical and radio telescopes, the Engineering Fabrication Facility, and much more...
- Located near the U.S. Department of Energy's National Energy Technology Laboratory (NETL), our students and faculty participate in inter-institutional collaborations, conducting basic and applied energy research at state-of-the-art facilities.
- Our proximity to the Green Bank Observatory (2.5 hours south) offers easy access to world-class instruments and expertise.



# **DEGREE INFORMATION**

## EXAMPLE PLAN OF STUDY

*This is an example of what to expect in each year of study working towards a Ph.D. in Physics at WVU.*

- **Year One:**
  - Courses: Mastering fundamental physics at the graduate level
  - PHYS 797: Surveying choices for research advisor
- **Year Two:**
  - Courses: Completing core courses
  - Courses: Surveying subfields of specialization
- **Year Three:**
  - Courses: Surveying subfields of specialization
  - Courses: Advanced analysis in subfield specialization
  - Self-study: Completion of the candidacy examination
  - PHYS 797: Intellectual contributions in research
- **Year Four:**
  - PHYS 797: Intellectual contributions in research
- **Year Five:**
  - PHYS 797: Intellectual contributions in research
  - Writing and defending the dissertation
- **Year Six:**
  - PHYS 797: Intellectual contributions in research
  - Writing and defending the dissertation

## TYPICAL FALL COURSES

PHYS 611: Introduction to Mathematical Physics  
 PHYS 651: Quantum Mechanics 1  
 PHYS 634: Electromagnetism 2  
 PHYS 710: Nonlinear Dynamics  
 PHYS 761: Statistical Mechanics  
 PHYS 771: Introduction to Solid State Physics  
 PHYS 774: Optical Properties of Solids  
 PHYS 782: Computer Simulation of Plasma  
 PHYS 784: Magnetohydrodynamics  
 PHYS 791: Advanced Topics (*topics vary*)  
 ASTR 701: Computational Astrophysics  
 ASTR 702: Stellar Structure and Evolution  
 ASTR 705: Interstellar Medium

## TYPICAL FALL COURSES

PHYS 633: Electromagnetism 1  
 PHYS 631: Classical Mechanics  
 PHYS 652: Quantum Mechanics 2  
 PHYS 772: Semiconductor Physics  
 PHYS 773: Collective Phenomena in Solids  
 PHYS 781: Principles of Plasma Physics  
 PHYS 783: Kinetic Theory  
 PHYS 791: Advanced Topics  
 ASTR 700: Radio Astronomy  
 ASTR 704: Galactic Astronomy  
 ASTR 791: Advanced Topics (*topics vary*)

Specific information and academic policies related to the Ph.D. and M.S. degrees in Physics at WVU can be found in the **Graduate Student Handbook**, located on the Department's website. Scan the QR code at right to access the Handbook, or visit: [physics.wvu.edu/graduate-students/handbook](https://physics.wvu.edu/graduate-students/handbook)



# DEGREE INFORMATION

## EXAMPLE COURSE PLAN FOR GRADUATE STUDY

*This is an example of what courses you are likely to take in each year of graduate study.*

- **Fall #1**
  - PHYS 611: Introduction to Mathematical Physics
  - PHYS 651: Quantum Mechanics I
  - PHYS/ASTR Elective (*optional*)
- **Spring #1**
  - PHYS 633: Electromagnetism I
  - PHYS 631: Classical Mechanics
  - PHYS/ASTR Elective (*optional*)
- **Fall #2**
  - PHYS 761: Statistical Mechanics
  - PHYS/ASTR Elective
  - PHYS/ASTR Elective (*optional*)
- **Spring #2**
  - PHYS/ASTR Elective
  - PHYS/ASTR Elective
  - PHYS/ASTR Elective (*optional*)

## CANDIDACY & DEFENSE

Before the completion of their third year in the program, students must deliver a presentation reviewing a published paper related to the candidate's research field, followed by an oral examination with the student's doctoral committee. Students who pass the exam are then admitted to candidacy for the Ph.D. degree.

Research is then the central focus of the degree and is directed by a faculty advisor. When the student's research is completed, it is described in a written dissertation and defended before the doctoral committee.

## ELECTIVE & UNDERGRADUATE COURSES

Elective courses may be chosen from outside of the Department with the constraint that they must be approved by the Graduate Advising and Studies Committee.

A student may choose to take a/an undergraduate course(s) in their first year if they feel inadequately prepared for graduate-level courses. These courses will not be counted towards completion of the graduate degree, but they will maintain the student's good standing.

Specific information and academic policies related to the Ph.D. and M.S. degrees in Physics at WVU can be found in the **Graduate Student Handbook**, located on the Department's website. Scan the QR code at right to access the Handbook, or visit: [physics.wvu.edu/graduate-students/handbook](https://physics.wvu.edu/graduate-students/handbook)





# FACULTY DIRECTORY

## LEADERSHIP

Maura McLaughlin | Chair, Astrophysics (maura.mclaughlin@mail.wvu.edu)

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Paul Miller | Associate Chair, Physics Education Research (paul.miller@mail.wvu.edu)

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# **STAFF DIRECTORY**

## **MAIN OFFICE**

Viola Bryant | Administrative Assistant (vmbryant@mail.wvu.edu)

Miranda Heitz | Academic Program Assistant (miranda.heiz@mail.wvu.edu)

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Vicki Snively | Grant Administrator (vicki.snively@mail.wvu.edu)

## **CENTER FOR KINETIC PLASMA PHYSICS**

Greg Lusk | Research Associate (glusk@mail.wvu.edu)

## **CENTER FOR GRAVITATIONAL WAVES AND COSMOLOGY**

Joseph Glaser | Scientific Computations Specialist - NANOGrav (joe.glaser@nanograv.org)

Holly Legleiter | Public Relations Specialist (hlegleiter@mail.wvu.edu)

Margaret Mattson | Program Coordinator (mamattson@mail.wvu.edu)

## **EBERLY MACHINE SHOPS**

Doug Mathess | Senior Instrument Specialist (cmathess@mail.wvu.edu)

JR Raber | Senior Instrument Specialist (william.raber@mail.wvu.edu)

**View the complete faculty and staff directory, including post-doctoral researchers, on the Department's website.**

Scan the QR code at right,  
or visit:

<https://physics.wvu.edu/directory>

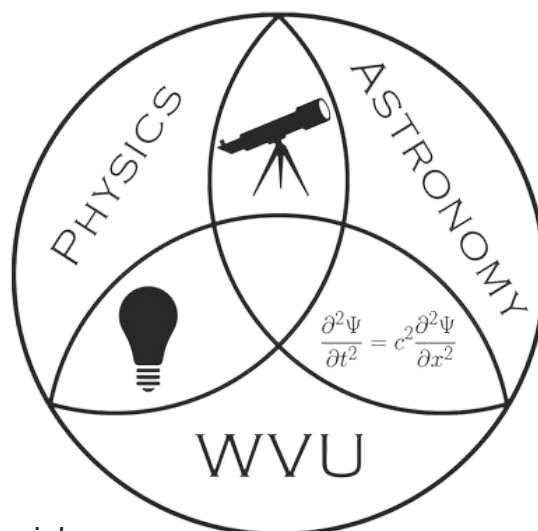




**The Physics and Astronomy Graduate Student Organization (PAGSO) serves as an inclusive environment to enrich the graduate student experience in the WVU Department of Physics and Astronomy.**

### **What Do We Do?**

Provide student representation to faculty meetings and University committees. Assist in planning workshops and department speakers throughout the year. Coordinate community service events both on and off campus. Plan social events for graduate students. Tackle graduate student issues as they arise.



### **Why Should You Care?**

We formed in Fall 2013 to open clearer lines of communication between the graduate students and the faculty and staff of the department. Your voice and concerns help enormously in fostering this communication. Since the formation of PAGSO, graduate students from the Department of Physics and Astronomy have taken on many roles across campus and are truly leaders amongst graduate students here at WVU.

### **2024-2025 Officers and Chairs**

#### **Officers:**

President: Danielle Maldonado (dcm00016@mix.wvu.edu)

Vice-President: Jackson Taylor (jdt00012@mix.wvu.edu)

Treasurer: John Pace (jjp00011@mix.wvu.edu)

Secretary: Susie Paine (sp00048@mix.wvu.edu)

Faculty Liaison: Tim Olszanski (teo0008@mix.wvu.edu)

Climate Liaison: Brett Ballard (blb00030@mix.wvu.edu)

#### **Chairs:**

Outreach: Danielle Maldonado (dcm00016@mix.wvu.edu)

Social: Ashley Stone/Janessa Slone (ats00039@mix.wvu.edu/jrs00129@mix.wvu.edu)

Recruitment: Ashley Martsen/Susie Paine (arm00073@mix.wvu.edu/sp00048@mix.wvu.edu)

Mentorship: Susie Paine/Maggie Emig (sp00048@mix.wvu.edu/mme00014@mix.wvu.edu)

Media: Brett Ballard/Sloane Sirota (blb00030@mix.wvu.edu/ss00300@mix.wvu.edu)

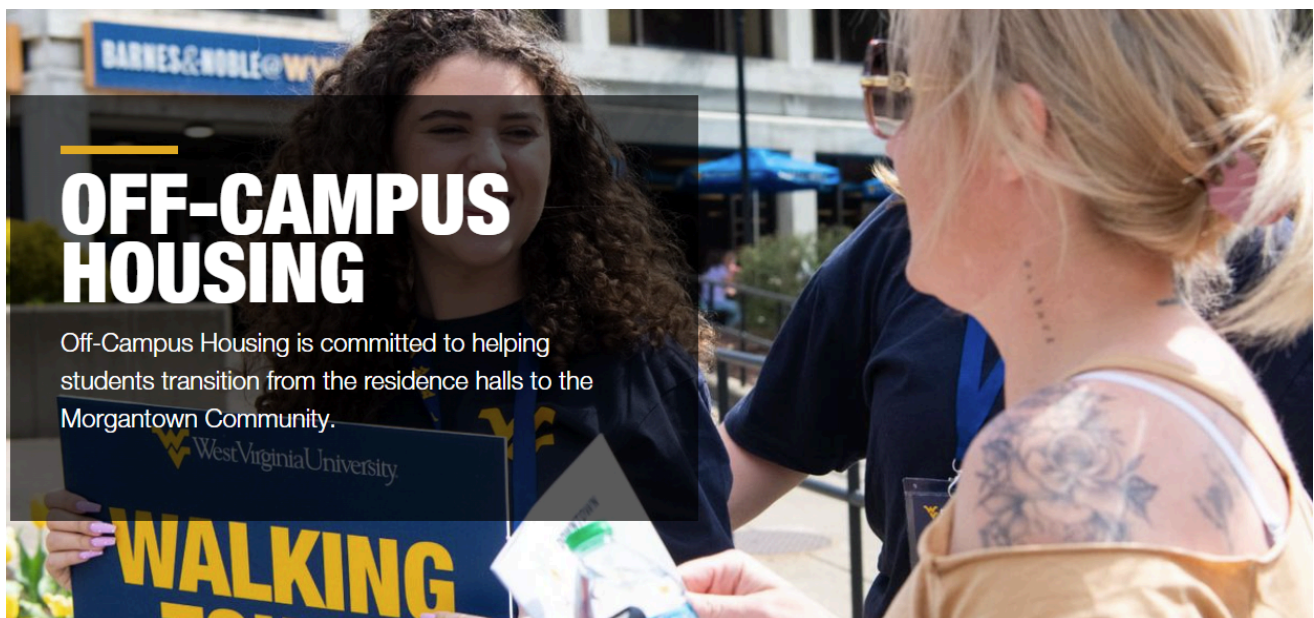
Fundraising: John Pace (jjp00011@mix.wvu.edu)

# HOUSING

**WVU Campus and Community Life maintains resources related to off-campus housing both on campus and in the greater Morgantown area.**

They also offer information to students about apartment shopping, moving in and out, and their rights and responsibilities as renters. Their goal is to ensure that students feel supported, confident, and well-prepared to live in the Morgantown community while attending WVU. The office hosts housing fairs in the fall and spring semesters to allow students to explore many of their options and talk directly to local landlords.

Feel free to contact their office at [OCH@mail.wvu.edu](mailto:OCH@mail.wvu.edu) or call them (304) 293-5611 if you have any questions regarding on- and off-campus housing in Morgantown.



Scan the QR code at right, or visit:

<https://campuslife.wvu.edu/living-off-campus/off-campus-housing>





# MORGANTOWN

**The Metropolitan Theatre** – Located on High Street, this local theatre offers community shows and, for the more active in the evening, provides a pool hall underneath the theatre for some relaxing.

**Cooper's Rock State Forest and Overlook** – A short drive (15 min.) outside of Morgantown is Cooper's Rock, which provides hiking trails, picnic grounds, and a majestic overlook of the land of the Mountaineers. This offers a different, more rugged view of Morgantown while providing a pleasant selection of West Virginia wilderness and scenery – it is particularly beautiful in Autumn when the leaves are just starting to change. The WVU Research Forest sits adjacent to Cooper's Rock. This 7,600 acre plot of land was leased for 100 years from the state of West Virginia for just \$1 per year!

**Morgantown Farmer's Market** – Though it won't be open during your visit, the Farmer's Market is a staple of many graduate students. Open from May through September on Saturdays (8:30 am – 12:30 pm, 415 Spruce Street) and Tuesdays (4-7 pm, 801 Fairmont Road), you'll find local farmers selling a variety of produce, honey, breads, cheeses, etc. Bring cash, although some vendors accept credit/debit cards.

**Fallingwater by Frank Lloyd Wright** – A one hour drive northeast of Morgantown and just a jaunt off of I-68, Fallingwater offers guided building and garden tours, an artsy gift shop, and picturesque views of Pennsylvania's Laurel Highlands.



For more information and events,  
scan the QR code at right, or visit:  
<https://www.visitmountainercountry.com/>







**After the decline of the steel industry, Pittsburgh rebranded itself as a hub for healthcare, robotics, and art, among others. It's a young, vibrant city, and it is less than an hour and a half drive from Morgantown. Some recommendations below...**

#### **Strip District - Smallman St. and Penn Ave.**

Every Saturday vendors lay out their wares on the sidewalks for all to see. Bring cash as numerous retail outlets in Pittsburgh do not accept. Paid parking averages \$5 in the strip for unlimited time. There are excellent sidewalk sales, including artisans selling jewelry, paintings, etc. along with great roasted coffee shops. "The Strip" is also home to some excellent ethnic food stores - Italian, Polish, Greek, Mediterranean, Japanese... Nearby you'll find the original Primanti Brothers ([www.primantibros.com](http://www.primantibros.com)) - a Pittsburgh tradition!

#### **City of Champions**

Whether you're from a sports rival city or couldn't care less, Pittsburgh is a great place to go to a ball game. Tickets for Pirates games at PNC Park can go for as cheap as ~\$12 with a beautiful view of the city skyline. Also nearby is Heinz Field (home of the Steelers) and the Rivers Casino.

#### **Best Views of Pittsburgh**

Mount Washington Observation Deck: Grandview Ave., Pittsburgh, PA 15211  
West End-Elliot Overlook Park: Marlow St., Pittsburgh, PA, 15205

#### **More Recommendations!**

- Excellent theatre district + great natural history and science museums
- Pittsburgh Zoo & Aquarium and the National Aviary
- Duquesne Incline: Open 365 days a year, \$5.00 round trip! ([www.duquesneincline.org](http://www.duquesneincline.org))

For more information and events,  
scan the QR code at right, or visit:  
<https://www.visitpittsburgh.com/>



# PRO-TIPS

If it says “No Parking”, you will likely be towed in seconds. It’s best to always be cautious when it comes to parking and feed the meters. There are several parking garages and paid lots around downtown (\$0.75 / hr). You have to prepay in the lots, which can be tedious. The Mountainlair (Student Union Building) parking garage is free on weekends after 8:30pm.

The PRT is free to ride, but not always reliable. If you use it, try to budget extra time just in case.

The WVU Department of Physics and Astronomy Graduate Student handbook has information about how to ask for the type of mentoring you need, tips for being a successful graduate student, program requirements, necessary forms, and much more.

Morgantown is very busy during home (American) football games. Plan to avoid downtown and/or expect more traffic than usual.



WVU Students are eligible to receive one ticket to home football games for free (per season), which you can register for online.

Read the emails from the Department! They may contain information about free food, outreach opportunities, visitors, or other interesting things to know about.

When in doubt, ask Viola or Miranda! They can help with almost anything, or at least suggest where to go next.



# WEST VIRGINIA RESTAURANTS

**Morgantown has a ton of great options for food! Here are our favorites:**

1. The Grind (C,D,G,V+)
2. Primanti Bros (G, A, V, V+)
3. Casa D'Amici (Pizza)
4. Fat Daddy's Bar & Grill (A)
5. Zeke's (C,D,V+)
6. Happy's Pub and Stuff (A)
7. Chipotle (G,D,V+)
8. Layne's Chicken Fingers (V)
9. D.P. Dough (Calzones)
10. Subway (D,V)
11. Yama Japanese Restaurant (D,G,V+)
12. Chaang Thai (A,D,G,V+)
13. Bubble Fish (G,D,V+)
14. Almost Heaven Bar and Grill (A)
15. Gibbie's Pub and Eatery (A,G,V)
16. Cold Stone Creamery (G,D,V+)
17. Linsan Soul Food (G)
18. Von Blaze (G,D,V+)
19. Sports Page (A)
20. Dirty Bird (Large Sandwiches)
21. Monarca - Taqueria (V)
22. Blue Moose Café (C,V)
23. Great Wall (Chinese)
24. Iron Horse Tavern (A,V)
25. Apothecary Ale House & Café (A)
26. Brewpub (A, G,V)
27. Wings Ole
28. Fresh Mint (D,G,V)
29. Oliverio's Ristorante (A,G,V)
30. Mountain State Brewery (A,G,V)
31. Flour and Feed (G,V)
32. Table 9 (A,D,G,V+)
33. Quantum Bean (C,D,V+)
34. Domino's Pizza (G, V)
35. Phoenix Bakery (also pizza)
36. Bombay (V)
37. Escobar's (A, V, D, G)

**KEY** (See back page for numbered map)

A – Alcoholic Beverages Served

C – Coffee Served

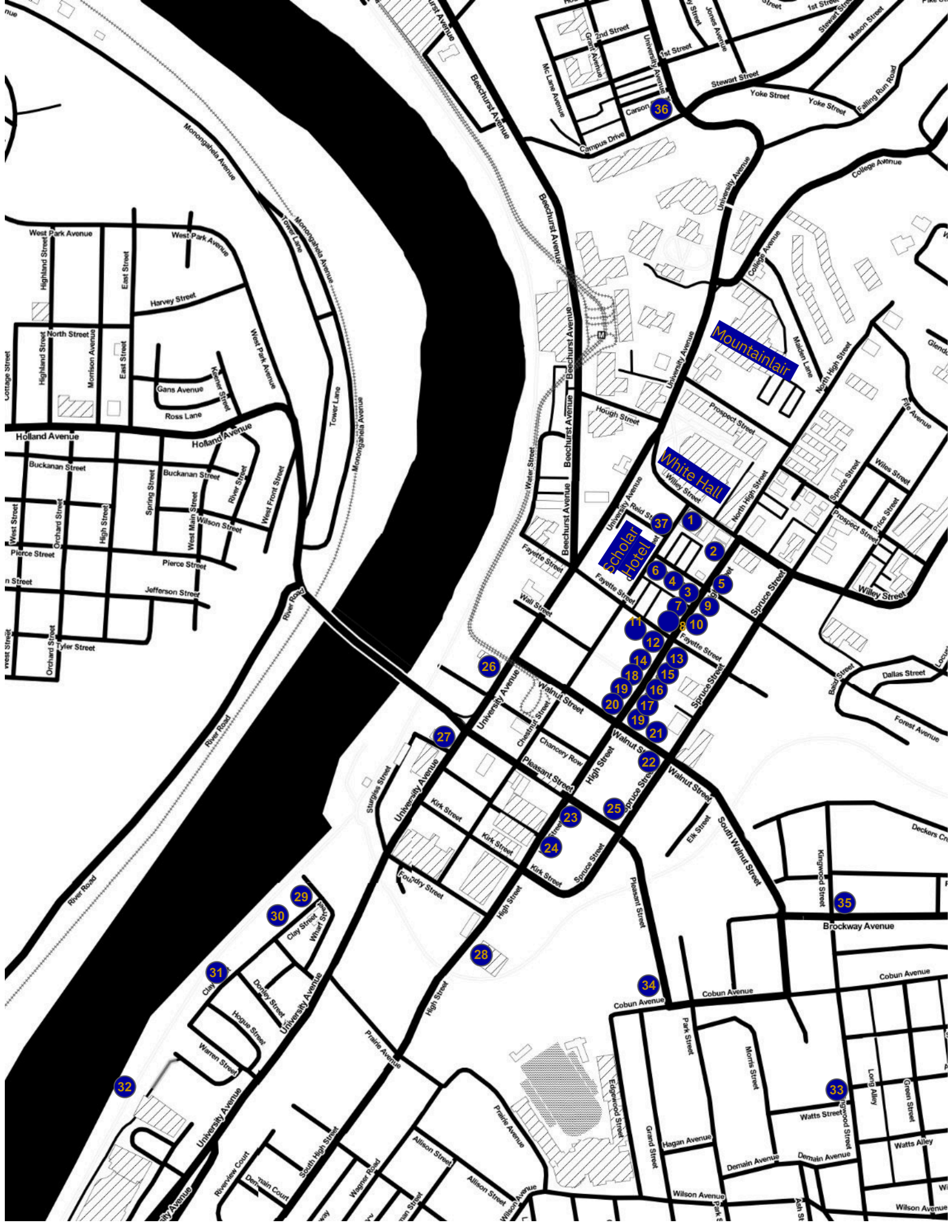
D – Dairy Free Options

G – Gluten Free Options

V – Vegetarian Options

V+ – Vegan Options

**Note:** *Though we endeavored to include everyone, the above list may be incomplete!*



36

Mountainair

White Hall

Scholar Hotel

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