



Academic Requirements

Ron Gilman

- State of NJ
- ``Rutgers University'' / School of Arts and Sciences (SAS)
- The contract (Rutgers - AAUP/AFT)
- Rutgers School of Graduate Studies (SGS)
- Physics and Astronomy graduate program
- State / University / SGS requirements are beyond our control.
 - Sometimes deadlines are flexible; do not count on it.
- Program requirements are set by us, so we have some flexibility, *if* approved by Graduate Studies
 - E.g.: extension of time to complete Ph.D. qualifiers
 - E.g.: what is an out of area course?

- Year 1: courses, maybe work with faculty
- Summer 1: work with faculty
 - ``Trial'' projects
 - Often but not always for pay
 - Some teaching available
- Year 2:
 - M.S. students: try to finish course and/or research credits, write essay / thesis, graduate
 - Ph.D. students: courses / qualifier / research
 - Pass Ph.D. qual + 30 (appropriate) credits: M.S.!
- Summer 2: research - for pay? - or summer teaching
- Year 3 ...
 - additional courses?
 - research, research, research

- Continuous registration
- 30 course credits
- Essay
 - We have no written guidelines about what constitutes an essay.
- Comprehensive exam
 - Approval by 3 (4) faculty
 - P&A exam: write essay, give talk, answer questions
- There is no ``timeline'' for an M.S. degree.
- There is no detailed course requirement, as we have for Ph.D. degree. But core courses strongly recommended.

- Continuous registration
- 24 course credits + 6 research credits (16:750:701 or 702)
- Thesis
 - We have no written guidelines about what constitutes a thesis.
- Comprehensive exam
 - Approval by 3 (4) faculty
 - P&A exam: write essay, give talk, answer questions
- There is no ``timeline'' for an M.S. degree.
- There is no detailed course requirement, as we have for Ph.D. degree. But core courses strongly recommended.
- What is the difference between a thesis and an essay?

- New program, just approved by SAS and SGS, intended to start fall 2024
- Similar to pre-existing M.S., except for strict course requirements: <https://physics.rutgers.edu/quantum-science-masters-program>
- 27 course credits + 6 research credits (16:750:701 and 702)
- Internship component
- Thesis
- Comprehensive exam — expect to be same as before

Quantum Science Suggested Courses

Quantum Computing / Materials focus

Semester I:

- i) Quantum Mechanics I (501)
- ii) Solid State Physics I (601)
- iii) **Quantum Computing Theory (681)** / Computational Physics (509)

Semester II:

- i) Quantum Mechanics II (502)
- ii) **Quantum Computing Experiment** / Solid State Physics II (Physics 602)
- iii) (Begin research, prepare for internship)

Semester III:

- i) **Quantum Algorithms (CS 583)** / Solid State Physics III (Physics 603)
- ii) Machine Learning I (568) / Many Body Physics I (620)
- iii) Research (701)

Semester IV:

- i) Machine Learning II (569) / **Quantum Computing Experiment**
- ii) Research (702)

- Continuous registration
- 72 credits including 24 research credits (16:750:701 and 702)
- Ph.D. qualifier + pass core courses → “advancement to candidacy”
- Thesis / dissertation
- Final exam
 - Oral presentation of work described in thesis to a 4 (5) person committee, one external member, followed by answering questions
- IDPs - individual development plans now “required” by SGS, especially for students after 7th year

- Structure of qualifier determined by program: write essay, give oral presentation, answer questions
- Brief note to Qualifier Committee Chair (Prof. Saurabh Jha) by September 1 with your name, mentor's name, couple sentence description of your work — allows committee to be assigned
- Typically paper submitted by November, committee meeting held before December 1
- Each part evaluated P/F separately, second chance for each part
- **After you pass**, do the paperwork! (~90% succeed)
 - <https://grad.rutgers.edu/academics/forms?&location=23>
 - We do NOT have a language requirement.

- Core course requirement
 - Must pass course or challenge exam within 4 terms
- Ph.D. qualifier requirement
 - Must pass within 4 terms
- Advanced course requirement
 - Must take 2 advanced in-area and 2 advanced out-of-area courses
- Final exam
 - Oral presentation of work described in thesis to a 5 person committee, one external member, followed by answering questions

- Core course requirement
 - Physics: 501, 502, 503, 504, 507, 611
 - Astronomy 501, 503, 507, 514, 607 or 608
- Advanced course requirement
 - Astronomy: 606 Stars & Planets, 607 Galaxies, 608 Cosmology, 610 Interstellar Matter
 - Biophysics: 567 Living Matter
 - Condensed Matter: 601, 602, 603 Solid State, 620, 621 Many Body
 - General Relativity: 617
 - Subatomic Physics: 605 Nuclei, 613 Particles, 615 Overview QFT, 616 Field I, 618 Group Theory, 619 Fields II

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 - Also advanced / special topics classes

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- GPD appoints a 4-person committee, typically:
 - Ph.D. adviser
 - Second faculty from your area
 - Faculty on the opposite side of experiment vs. theory
 - Faculty from another area on same side of experiment vs. theory
- Some students switch advisers - this was done by 2 4th-year students last spring.
- Have an annual meeting with your committee - giving talks is fun!
- I try to check up on your registrations and progress in September, January, and May, but might be too busy, and usually only email once you are ~ 4th year and are not heading towards completing requirements
- Submit an IDP every year — required by SGS after 6 years.

- You can transfer credits for graduate courses taken before you entered the program.
- Pay less tuition, save adviser grant \$!
 - A laptop or research trip for you?
- Sometimes we accept transferred credits for the advanced course requirements.
- If you place out of core courses, you can get credits for having taken them before.
- Cannot be done until your first term is over → talk with me in January.



APPLICATION FOR TRANSFER OF CREDIT

- Complete Section 1 of this form and make sure to include the relevant course information. Credit listed must be listed as semester credits.
- Submit for evaluation and signature by your Graduate Director (Section 2).
- After your Director's approval and signature submit this form along with a transcript reflecting the courses you intend to transfer to sgsadmin@grad.rutgers.edu
- **Transcripts must be official and include a grading scale or key. Transcripts also must be in English or an official translation must also be provided.**
- Upon approval of the Deans office, your transfer of credits will be reflected on your official transcript.

POLICY: Upon completion of **9 credits** of graduate level course work with grades of *B* or better, in the School of Graduate Studies as a matriculated student, your request will be evaluated.

Transfer of credit is allowed only for formal graduate level course work specifically related to the student's program of study in which grades of B or better were received. No credit may be transferred for thesis research work, course work done as independent study, or work in courses which were not graded. Grades of P, R, or S are eligible for transfer if equivalent to a grade of B or better and accompanied by a letter from the instructor of the course testifying to that equivalence.

Credit is not normally transferred for courses taken more than six years prior to the application for transfer of credit. Appeals for waiver of this time limit may be made by the graduate director, in writing, with a statement verifying the current level of the student's information on the subject or that the course material is still current.

No more than the equivalent of one year of course work may normally be transferred toward the Ph.D. (i.e., 24 credits). No more than 40% of the credits required for the Master's degree may be transferred.

- <https://physics.rutgers.edu/academics/graduate-program/how-to-graduate> has a summary of requirements, guidance, links to checklists

Registration Basics

- <https://physics.rutgers.edu/academics/graduate-program/registering-for-classes-and-appointment>
- Register your appointment (counts towards full / half time status, but not toward Ph.D.)
 - Fellows register for course 811, 0 credits.
 - GAs register for course 866, 6 GA credits.
 - TAs, register for course 877, 6 TA credits.
- Register for courses and research — see <https://classes.rutgers.edu/soc/#courses?subject=750&semester=92024&campus=NB&level=G>
- Take lots of credits as TAs in 1st and 2nd year, so you need fewer later on as a GA.
 - Most years a student wishes they had taken more credits earlier - they need graduate a term later if we can get the time machine working to increase credits in the past.
 - But aim for 72 the term of your defense.

Registration and Term Bill

- We and SAS recognize the issue with term bills — you only register 1-2 weeks before the term due to the issue of term bill due dates and late fees vs. when tuition remission is paid.
 - Register, do not pay bill or late fee, wait for your tuition / fees to be paid, contact Shirley if worried.
 - Typically a few weeks before each term there is an email from me, as we try to figure out whether some courses need to be cancelled.
- Occasionally term bills look funny — if there is something you do not understand or that does not look right, contact Shirley.

- First year students: (contact Shirley Hinds if needed)
 - Apply for and receive SSN (typically) after the deadline.
 - Create a case in OneSource.
 - Upload a copy of your SSN and tell Shirley Hinds.
 - After SSN is updated, tell Barbara Crimmins (barbarac@hr.rutgers.edu) which insurance carrier / plan you want.
- Check your health insurance is correct or waived as needed.
 - Full-year GAs/TAs get SHBP.
 - All GAs and TAs are full time, but some are full time for only one term, as they are Fellows the other term.
 - Fellows get SHIP, paid by SGS.
 - Everyone needs to be insured; some of you have outside insurance and need to waive Rutgers insurance.
 - Having multiple insurance plans can lead to issues.

Sample contract provision

FT faculty-grad worker-BHSNJ MoA.pdf
Page 33 of 261

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Sort By: Search Rank Page Order

Page 100
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the recommendation, specified in Part I of the contract, and neither the faculty member was a member of the department Peer Evaluation Committee and/or a department chairperson.

PART THREE: TEACHING ASSISTANTS AND GRADUATE ASSISTANTS – SALARY PROVISIONS

A. During the term of the Agreement, the minimum base salary for full-time teaching and graduate assistants shall be:

a. **Academic Year Appointment:** \$33,178 for Fiscal Year 2022-23; \$35,335 for Fiscal Year 2023-24; \$36,395 for Fiscal Year 2024-25; and \$40,000 for Fiscal Year 2025-26.

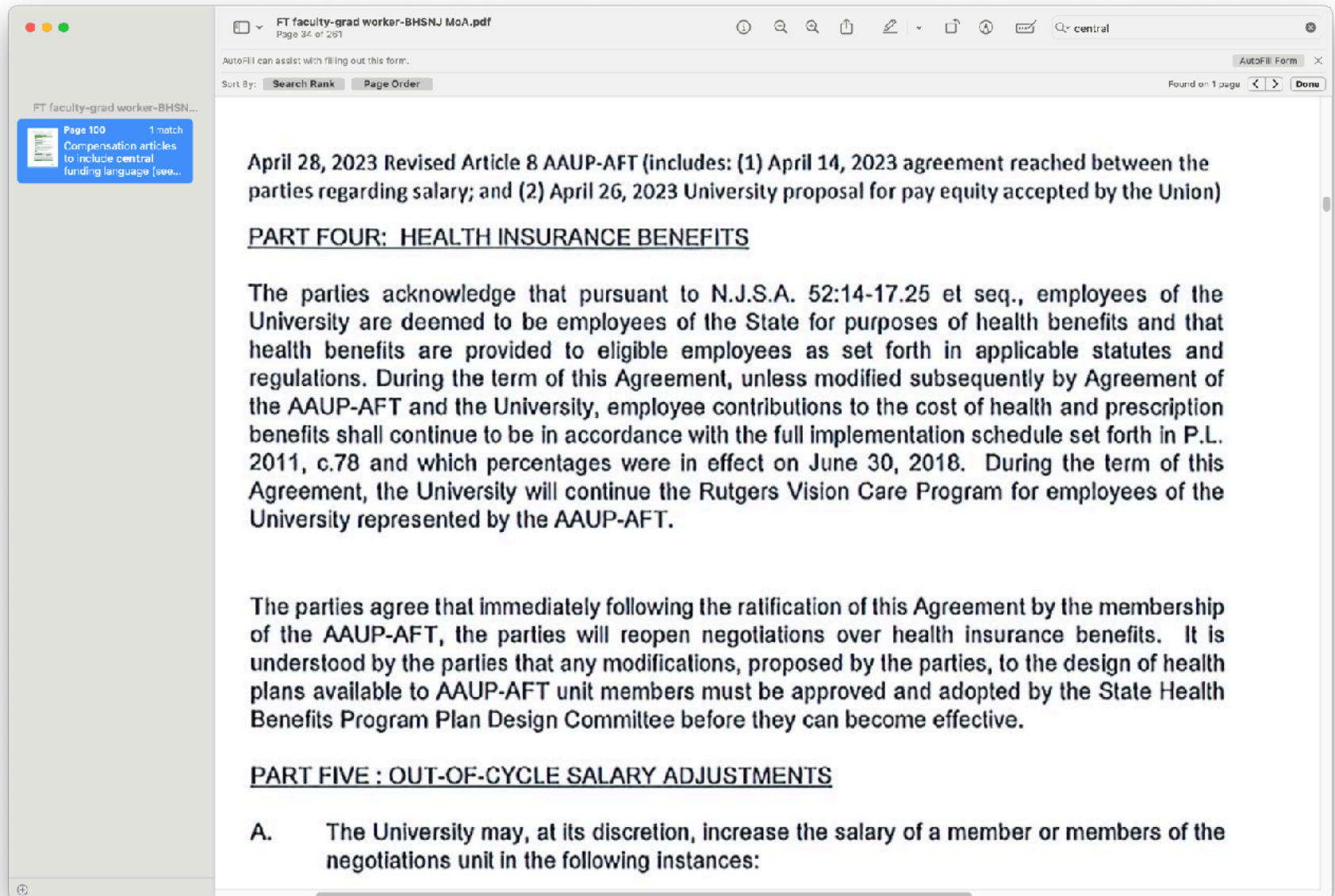
b. **Calendar Year Appointment:** \$38,155 for Fiscal Year 2022-23; \$40,635 for Fiscal Year 2023-24; \$41,854 for Fiscal Year 2024-25; and \$46,000 for Fiscal Year 2025-26.

c. Teaching and graduate assistants may be paid above the minimum base salary rate, which shall become the individual base salary for future appointments.

B. All TAs and GAs, who hold less than a full-time appointment, may enroll at no cost to them in the Rutgers University Graduate Fellows Student Health Insurance Plan or its successor plan pursuant to procedures established by the University for this purpose.

8

Sample contract provision



FT faculty-grad worker-BHSNJ MoA.pdf
Page 34 of 281

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April 28, 2023 Revised Article 8 AAUP-AFT (includes: (1) April 14, 2023 agreement reached between the parties regarding salary; and (2) April 26, 2023 University proposal for pay equity accepted by the Union)

PART FOUR: HEALTH INSURANCE BENEFITS

The parties acknowledge that pursuant to N.J.S.A. 52:14-17.25 et seq., employees of the University are deemed to be employees of the State for purposes of health benefits and that health benefits are provided to eligible employees as set forth in applicable statutes and regulations. During the term of this Agreement, unless modified subsequently by Agreement of the AAUP-AFT and the University, employee contributions to the cost of health and prescription benefits shall continue to be in accordance with the full implementation schedule set forth in P.L. 2011, c.78 and which percentages were in effect on June 30, 2018. During the term of this Agreement, the University will continue the Rutgers Vision Care Program for employees of the University represented by the AAUP-AFT.

The parties agree that immediately following the ratification of this Agreement by the membership of the AAUP-AFT, the parties will reopen negotiations over health insurance benefits. It is understood by the parties that any modifications, proposed by the parties, to the design of health plans available to AAUP-AFT unit members must be approved and adopted by the State Health Benefits Program Plan Design Committee before they can become effective.

PART FIVE : OUT-OF-CYCLE SALARY ADJUSTMENTS

A. The University may, at its discretion, increase the salary of a member or members of the negotiations unit in the following instances:

Thank you