CSC36000 Modern Distributed Computing
NextGen with AI Agents

Time: Fall 2025, Mon/Wed 2:00p-3:15p **Room:** SH-209
Prof: Saptarashmi Bandyopadhyay **TA:** N/A
Office Hours: Online/By Email while temporary office arrangements are made during construction of my office (from 8/26-9/14)
4 pm Monday at NAC 8/206D by Appointment/Online/By Email (from 9/15- Now) – CCNY CS Chair Prof Kawaguchi kindly offered his NAC 8/206D Chamber for Office Hours of CS students pending construction of my office

Course Description

Modern Computing involves processing complex information enabling AI Agents to perform daily tasks in the real world, which poses challenges of efficiency, latency, energy, power, privacy, chip utilization, prioritization, bandwidth, standardization, privacy, data loss, and reliability.

This course on Modern Distributed Computing - *NextGen with AI Agents*, offers solutions to these challenges, enabling students to learn new programming and technical skills. In this course, we will comprehensively explore an unified framework of modern distributed computing models with an eclectic synergy to real-world AI Agents having multimodal capabilities like audio, vision, language, tactile and sensory properties. We shall explore fundamental Deep Learning and Control algorithms like Multi-Agent Reinforcement Learning, Imitation Learning, Model Predictive Control, Self-Supervised Learning, Evolutionary Learning and Computational Game Theory while finding the best paths for these algorithms to achieve distributed computing system and network efficiency metrics in the real world.

Course Outcomes

Students will be taught to work on assignments and projects in simulation while understanding implications of real world embedded deployment of distributed computing with AI Agents (be it audio-vision-language models or control models) in domains like 6G/7G AI Agent Embedded Internet, self-driving cars, battery storage management, AR/VR/XR, drones, smart grid orchestration, stock portfolio optimization, robotics, building planning and real estate decision making. For class projects, students can explore simulations as well as recreate real world distributed computing in a classroom setting on the edge computing space using either smartphones or AR glasses. Students will gain the capability of efficiently parsing scientific and engineering research papers, relevant for their class project. Through a learning bridge between theory, algorithms and hands-on coding, students will learn programming skills in JAX and Python, distributed computing principles, multi-agent coordination, decentralized learning with a focus on reliable, scalable and interpretable modern AI centric design of distributed computing.

Free TextBooks, Open-Source Coding & Relevant Resources

– Free Text Books

1. Parallel and Distributed Computation: Numerical Methods by Dimitri P. Bertsekas and John N. Tsitsiklis, 2018 https://web.mit.edu/dimitrib/www/pdc.html http://www.athenasc.com/pdcbook.pdf

2. Rollout, Policy Iteration, and Distributed Reinforcement Learning by Dimitri P. Bertsekas, 2020 https://web.mit.edu/dimitrib/www/dp_rollout_book.html + https://web.mit.edu/dimitrib/www/Rollout_Complete%20Book.pdf
3. Distributed Systems - Principles and Paradigms, Second Edition by Andrew S Tanenbaum and Maarten Van Steen, 2017 https://vowi.fsinf.at/images/b/bc/TU_Wien-Verteilte_Systeme_VO_%28G%C3%B6schka%29_-_Tannenbaum-distributed_systems_principles_and_paradigms_2nd_edition.pdf
4. Multi-Agent Reinforcement Learning Book by Stefano Albrecht, 2024 https://www.marl-book.com/download/marl-book.pdf
5. Reinforcement Learning by Dimitri P. Bertsekas, 2025 and 2019 (including video lectures) https://web.mit.edu/dimitrib/www/RLbook.html + https://web.mit.edu/dimitrib/www/RLbook.html
6. Deep Learning by Ian Goodfellow, 2012 https://www.deeplearningbook.org/
7. An Introduction to Multi-Agent Systems by Michael Wooldridge, 2001 https://uranos.ch/research/references/Wooldridge_2001/TLTK.pdf
8. 6G Flagship Book, 2023 https://www.6gflagship.com/news/unveiling-the-digital-horizon-new-book-on-5g-6g-and-future-digital-services-released/
9. Selected open-source research papers will be provided by the Professor

– Open-Access JAX Learning Resources

1. JAX 101 Tutorial https://docs.jax.dev/en/latest/jax-101.html
2. JAX Tutorials (including JAX 201 and JAX 301) https://docs.jax.dev/en/latest/_tutorials/index.html
3. JAX Documentation https://docs.jax.dev/en/latest/jax.html?spm=a2c6h.13046898.publish-article.21.6f9f6ffaIymbyj
4. JAXMARL https://github.com/FLAIROx/JaxMARL

– Open-Source Coding Resources

1. HuggingFace Transformers coding library https://huggingface.co/docs/transformers/en/index
2. PyTorch Lightning
    a. Lightning https://lightning.ai/docs/pytorch/stable/
    b. Lightning's github repository https://github.com/Lightning-AI/pytorch-lightning
    c. Pypi package https://pypi.org/project/pytorch-lightning/
3. Gymnasium coding library
    a. Gymnasium on Farama https://gymnasium.farama.org/index.html
    b. Farama's github repository https://github.com/Farama-Foundation/Gymnasium
4. Python multiprocessing coding library https://docs.python.org/3/library/multiprocessing.html
5. HuggingFace Deep Reinforcement Learning Materials https://huggingface.co/learn/deep-rl-course/en/unit0/introduction Github: https://github.com/huggingface/deep-rl-class
6. HuggingFace AI Agents Materials https://huggingface.co/learn/agents-course/en/unit0/introduction Github: https://github.com/huggingface/agents-course

– Open-source Unit Testing Resources

1. Python unittest package https://docs.python.org/3/library/unittest.html
2. Python pytest package https://pytest.org/

– Background

1. Probability: Introduction to Probability for Computing by Mor Harchol Balter, 2024 https://www.cs.cmu.edu/~harchol/Probability/chapters/HarcholBalterWholeBook.pdf
2. Mathematics for Machine Learning by Marc Peter Deisenroth, A. Aldo Faisal, Cheng Soon Ong, 2020 https://mml-book.github.io/book/mml-book.pdf
3. Convex Optimization for Statistics and Machine Learning, Volume 1: Analysis by Ryan Tibshirani 2025 https://github.com/ryantibs/convexopt-book1/blob/main/book1.pdf
4. An Introduction to Statistical Learning with Python by Garreth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, 2023 https://www.statlearning.com/

– Google Colaboratory Set-Up for Assignments and Projects

– You can run the Jupyter Notebook for Coding Assignments and Projects.

1. The easiest way to run these accounts is creating a gmail account quicky with your name (student_name)@gmail.com as Google Colab offers free compute on Cloud to run experiments
2. If you want to install Jupyter locally (local installation is not mandatory as Colab is easy to write development code on), follow the steps here https://docs.jupyter.org/en/latest/running.html
3. To address our compute challenges, please create your Google Colab Account by Sept 17 class. I will confirm if accounts are created in class.

.

– Course Schedule

The course schedule for the class (subject to revision) provides class topics and due dates. All submissions are due on the mentioned date in the table at 11:59 pm ET (Eastern Time).

Specific subtopics discussed in a class will be mentioned in the syllabus to help students revise during exams and to help them in their class projects

All slides will be uploaded to the website within a few days to a week after class.

DATE	TOPIC	RESOURCE	Due Dates (Assignments/Project outcomes/Exams)
Aug 27	Introduction to Modern Distributed AI Agents *Course overview, Primary Challenges and Opportunities (efficiency, latency, energy, power, privacy, chip utilization, prioritization, bandwidth, standardization, privacy, data loss, and reliability), Algorithmic fundamentals of Distributed AI Agents, Demo of Multi-Agent AI with Deep Reinforcement Learning (RL), Real world*	Reinforcement Learning by Bertsekas (https://web.mit.edu/dimitrib/www/Rollout_Complete%20Book.pdf) - Chapter 1 Deep Learning by Goodfellow	

	use cases of Distributed AI Agents	(https://www.deeplearningbook.org/) - Chapter 1 Distributed Systems (Tanenbaum) (https://vowi.fsinf.at/images/b/bc/TU_Wien-Verteilte_Systeme_VO_%28G%C3%B6schka%29_-_Tannenbaum-distributed_systems_principles_and_paradigms_2nd_edition.pdf) - Chapter 1	
Sept 3	Distributed Data Processing for AI Agent Integrated 6G/7G Internet *Challenges with 5G, AI integration focus for semantic understanding in 6G/7G internet, intelligently modulated dynamic bandwidth, elastic optical networks, Data loss during transmission, Modalities of data being transmitted (tabular, graphical, multi-modal (audio-visual, language)), Optimizing loss from data compression vis-a-vis detecting important data components, Case Study of Augmented Reality (AR) based Distributed AI Agents*	Distributed Systems (Tanenbaum) (https://vowi.fsinf.at/images/b/bc/TU_Wien-Verteilte_Systeme_VO_%28G%C3%B6schka%29_-_Tannenbaum-distributed_systems_principles_and_paradigms_2nd_edition.pdf) - Chapter 2 6G Flagship Book (2023) (https://www.6gflagship.com/news/unveiling-the-digital-horizon-new-book-on-5g-6g-and-future-digital-services-released/) - Chapter 1, 2 Parallel & Distributed Computation (PDF) (http://www.athenasc.com/pdcbook.pdf) - Chapter 1	
Sept 8	Distributed AI Training on AI accelerators (GPUs and TPUs) *Syllabus Walkthrough, Metrics for Successful evaluation of Distributed AI*	Parallel & Distributed Computation (PDF) (http://www.athenasc.com/pdcbook.pdf) - Chapter 1	

	Algorithms	Deep Learning by Goodfellow (https://www.deeplearningbook.org/) - Chapter 8	
Sept 10	Metrics for Distributed Computing, Especially Distributed AI Agents *Accuracy, Precision, Recall, F-measure, Confusion Matrix, Sparsity in Distributed Computing, Reliability and Ability to Fix Mistakes in Distributed Computing, Real World Usecases*	Mathematics for Machine Learning (PDF) (https://mml-book.github.io/book/mml-book.pdf) - Chapter 8 Intro to Probability for Computing (PDF) (https://www.cs.cmu.edu/~harchol/Probability/chapters/Harchol_Balter_WholeBook.pdf) - Part I	
Sept 15	Distributed Computing Systems Models *Fundamental distributed computing models (Synchronous vs. Asynchronous), system components, and communication paradigms, Real World Use Cases, Failure Tolerance (including Benign Failures, Byzantine Failures, Byzantine Failure Tolerance)*	Distributed Systems (Tanenbaum) (https://vowi.fsinf.at/images/b/bc/TU_Wien-Verteilte_Systeme_VO_%28G%C3%B6schka%29_-_Tannenbaum-distributed_systems_principles_and_paradigms_2nd_edition.pdf) - Chapter 8 Parallel & Distributed Computation (PDF) (http://www.athenasc.com/pdcbook.pdf) - Part I, Part II Reinforcement Learning by Bertsekas (https://web.mit.edu/dimitrib/www/RLbook.html) - Chapter 1,	Coding Assignment 1 Declared

		Chapter 2	
Sept 17	Distributed Algorithms for AI Coordination *Communication Models: Shared Memory, Message Passing, Distributed Single Agent AI Algorithms, Coordination Problem in Distributed Computing and AI, Coding Assignment 1 Set-Up and Brainstorming, Detailed walkthrough of Syllabus*	Parallel & Distributed Computation (PDF) (http://www.athenasc.com/pdcbook.pdf) - Part I, Part II Reinforcement Learning by Bertsekas (https://web.mit.edu/dimitrib/www/RLbook.html) - Chapter 1	Projects and Groups will be assigned
Sept 22	No Classes Scheduled at CCNY, CUNY (Fall Semester Break) (Academic Calendar Ref Link: Link)		
Sept 24	No Classes Scheduled at CCNY, CUNY (Fall Semester Break) (Academic Calendar Ref Link: Link)		
Sept 29	Distributed Algorithms for AI Coordination (continued) *Grid-World Example of Single Agent AI, Q Learning, Bellman Equation, Example Illustration of Tabular Q value computation with Bellman Equation, Multi-Agent Q Learning, Multi-Agent Action Space Complexity, Independent Q Learning and its Convergence, Value Decomposition Networks, QMIX*	Reinforcement Learning by Bertsekas (https://web.mit.edu/dimitrib/www/RLbook.html) - Chapter 1, 2 Multi-Agent Reinforcement Learning Book (PDF) (https://www.marl-book.com/download/marl-book.pdf) - Chapter 6	Coding Assignment 1 Due
Oct 1	No Classes Scheduled at CCNY, CUNY (Fall Semester Break) (Academic Calendar Ref Link: Link)		
Oct 6	Communication, Synchronization and Coordination in Distributed Computing	JAX 101 Tutorial (https://docs.jax.dev/en/latest/jax-101.html)	Written Assignment 1 (Mock Practice for Midterm Exam)

	Coding for Distributed AI Processing: Introduction to JAX (and Python) ***UCAR Week*** *Timing in Distributed Systems, Challenges of Physical Clocks, Ordering of Events (Queuing), Distributed State Management by Leslie Lamport, Lamport Timestamps, Partial Order, Total Order, Coordination via Mutual Exclusion, Distributed Mutual Exclusion, JAX code review, 4 key JAX functions, Code Examples with jit and grad*	JAX Documentation (https://docs.jax.dev/en/latest/jax.html?spm=a2c6h.13046898.publish-article.21.6f9f6ffalymbyj) Parallel & Distributed Computation (PDF) (http://www.athenasc.com/pdcbook.pdf) - Chapter 7, 8	Released
Oct 8	Multi-Agent AI at a Distributed Scale		Written Assignment 1 (Mock Practice for Midterm Exam) Due on Oct 10
Oct 13	College Closed (Academic Calendar Ref Link: Link)		
Oct 14	<CCNY, CUNY classes follow a Monday Oct 13 schedule> Consistency, Replication and Fault Tolerance for Reliability in Distributed AI Optimization of Energy, Bandwidth, Power, and Capacity in Intelligent Distributed Computing Settings	Distributed Systems (Tanenbaum) (https://vowi.fsinf.at/images/b/bc/TU_Wien-Verteilte_Systeme_VO_%28G%C3%B6schka%29_-_Tannenbaum-distributed_systems_principles_and_paradigms_2nd_edition.pdf) - Chapter 7, 8 Parallel & Distributed Computation (PDF) (http://www.athenasc.com/pdcbook.pdf) - Part II	Coding Assignment 2 Released
Oct 15	Midterm Exam		
Oct 20	No Classes Scheduled,Fall Semester Break at CCNY, CUNY (Academic Calendar Ref Link: Link)		
Oct 22	Deep Learning for Modern AI Agents	Deep Learning by	Coding Assignment 2

	ICCV Week	Goodfellow (https://www.deeplearningbook.org/) - Chapter 6 HuggingFace Transformers (https://huggingface.co/docs/transformers/en/index)	Due Written Assignment 2 Released
Oct 24	<CCNY, CUNY classes follow a Monday Oct 20 schedule> Decentralized AI Agents *Agent Ontologies, Communication, Cooperation, Coordination, Approximate Competition*	Intro to Multi-Agent Systems (PDF) (https://uranos.ch/research/references/Wooldridge_2001/TLTK.pdf) - Chapter 6, 8	Written Assignment 2 Due
Oct 27	Multi-Agent Deep Reinforcement Learning and Computational Game Theory fundamentals at a Distributed Scale	Multi-Agent Reinforcement Learning Book (PDF) (https://www.marl-book.com/download/marl-book.pdf) - Chapter 3, 9 Reinforcement Learning by Bertsekas (https://web.mit.edu/dimitrib/www/RLbook.html) - Chapter 2	Coding Assignment 3 Released Written Assignment 3 Released Project Abstract Reports Due
Oct 29	Imitation Learning and Self-Supervised Learning in Distributed AI Agents	Rollout, Policy Iteration & Distributed RL (PDF) (https://web.mit.edu/dimitrib/www/Rollout%20Complete%20Book.pdf) - Chapter 2 Deep Learning by Goodfellow (https://www.deeplearningbook.org/) - Part III	

Nov 3	Model Predictive Control (MPC) and Evolutionary Learning for Real-Time Mistake Correction in Distributed AI	Rollout, Policy Iteration & Distributed RL (PDF) (https://web.mit.edu/dimitrib/www/Rollout%20Complete%20Book.pdf) - Chapter 1, 2	Written Assignment 3 Due
Nov 5	Next Gen 6G/7G Networks for Edge and Cloud Computing	6G Flagship Book (2023) (https://www.6gflagship.com/news/unveiling-the-digital-horizon-new-book-on-5g-6g-and-future-digital-services-released/) - Chapter 6	Coding Assignment 3 Due
Nov 10	Scalability vis-a-vis Reliability in Real World Distributed AI Computing		
Nov 12	Multimodal AI Agents (Audio, Visual, Language, Sensory, Tactile modalities) Challenges of distributed processing, Quantized models, Data compression, Metrics	Deep Learning by Goodfellow (https://www.deeplearningbook.org/) - Chapter 9, 12 HuggingFace Transformers (https://huggingface.co/docs/transformers/en/index)	
Nov 17	Embedded Distributed AI Agents for Robotics, Drones, AR/VR/MR/XR, Self-Driving Cars	Multi-Agent Reinforcement Learning Book (PDF) (https://www.marl-book.com/download/marl-book.pdf) - Chapter 11 Rollout, Policy Iteration & Distributed RL (PDF) (https://web.mit.edu/dimitrib/www/Rollout%20Complete%20Book.pdf)"	Coding Assignment 4 Released Written Assignment 4 Released Project Midterm Update Due

Nov 19	Multi-Agent AI Capabilities: Planning, Negotiation & Navigation	Intro to Multi-Agent Systems (PDF) (https://uranos.ch/research/references/Wooldridge_2001/TLTK.pdf) - Chapter 15	
Nov 24	Hands on Coding of Distributed AI Agents: using JAXMARL and Gymnasium	JAXMARL GitHub (https://github.com/FLAIROx/JaxMARL) Gymnasium GitHub (https://github.com/Farama-Foundation/Gymnasium)"	Coding Assignment 4 Due Written Assignment 4 Due
Nov 26	Some Real World Applications of Distributed AI Agents - Smart Grid Orchestration - Stock Portfolio Optimization		
Dec 1	Neuromorphic Computing at a Distributed Scale	Research papers to be provided by Professor.	
Dec 3	Distributed Quantum Computing for Neuroscientific AI Agents ***NeurIPS Week***		
Dec 8	Interpretable and Explainable AI for Distributed Computing	Research papers to be provided by Professor.	
Dec 10	Project Presentations (Part I)		
Dec 15	Project Presentations (Part II)		At least 90% to 95% of project reports must be completed along with presentation
Dec 16-22	Final Exam as per CCNY, CUNY Academic Calendar (Ref Link: Link)		Final Project Report Due in Final Exam Week (Specific Date TBA, once Final Exam Schedules are released)

– Course Assignments and Exams
  – Assignments will be ensuring the class topic coverage in code as well as theory

– Students will agree to the academic integrity policy, following class AI policy and University policy

– Coding Assignment Deadlines

– Normally, coding assignments will be due every week but due to Fall Semester Break, Coding Assignment 1 will be due in 2 weeks on September 29.
– Deadlines will be clearly mentioned in the Syllabus schedule as well as Brightspace.

– Course Projects
– Detailed project assignments to be shared on September 17
– Staggered assignments

– Late Policy
– Delays in Assignment submission will lead to -10 points every day the assignment is delayed leading to a 0 if assignment is submitted 10 days after submission deadline.

– Recommendations on Assignment Submission

– My recommendation is to start and submit the assignments early, so that if you have questions, you can email me, come to my office hours, or ask me in class.

PLEASE SUBMIT ASSIGNMENTS EARLY

PLEASE REVISE YOUR ASSIGNMENTS AND PROJECTS THOROUGHLY
– Grading Structure

- Four Programming Assignments (18%)
    - The sum of all coding assignment scores will be weighted to generate a score out of 18
- Four Written Homework Assignments (18%)
    - The sum of all written assignment scores will be weighted to generate a score out of 18
- Classroom Participation (6%)
    - Classroom Questions (1% in each class during interactions, maximum of 6 classes)
- Midterm Exam (12%)
- Group Project (27%)
    - Project Abstract (Report on Overleaf in the form of a Research Paper) (4%)
    - Project Midterm Review (6%)
    - Project Presentation (5%)
    - Project Report (12%)
- Final Exam (19%)

– GenAI Policy

1. Generative AI can hallucinate (lie) to user prompts. You are responsible for any statements in your submissions, which will be judged based on whether they are true. You are accountable and liable to Generative AI usage. If Generative AI makes a mistake and you used the mistaken statement, you will be penalized for using the wrong statement.
2. You are allowed to use Generative AI during class homework and projects (NOT IN EXAMS) subject to:
    a. Usage of Generative AI should be done similar to how you search Online (e.g. Google)

b. Cite any Generative AI transcripts/links that you have referred to in your assignments and projects
c. Do not use Generative AI outputs verbatim!
d. Rewrite RELEVANT PARTS of Generative AI outputs in your own words!

– University Policies

– CUNY Academic Integrity Policy
https://www.cuny.edu/about/administration/offices/legal-affairs/policies-resources/academic-integrity-policy/

Academic dishonesty is prohibited in The City University of New York. Penalties for academic dishonesty include academic sanctions, such as failing or otherwise reduced grades, and/or disciplinary sanctions, including suspension or expulsion.
https://www.cuny.edu/about/administration/offices/legal-affairs/policies-resources/academic-integrity-policy/

Academic integrity is at the core of a college or university education. Faculty assign essays, exams, quizzes, projects, and so on both to extend the learning done in the classroom and as a means of assessing that learning. When students violate the academic integrity policy (i.e., "cheat"), they are committing an act of theft that can cause real harm to themselves and others including, but not limited to, their classmates, their faculty, and the caregivers who may be funding their education. Academic dishonesty confers an unfair advantage over others, which undermines educational equity and fairness. Students who cheat place their college's accreditation and their own future prospects in jeopardy.

1. Definitions and Examples of Academic Dishonesty.
    1. **Cheating** is the unauthorized use or attempted use of material, information, notes, study aids, devices, artificial intelligence (AI) systems, or communication during an academic exercise. Example of cheating include:
        1. Copying from another person or from a generative AI system or allowing others to copy work submitted for credit or a grade. This includes uploading work or submitting class assignments or exams to third party platforms and websites beyond those assigned for the class, such as commercial homework aggregators, without the proper authorization of a professor. Any use of generative AI tools must be in line with the usage policy for specific assignments as defined in the

course of the syllabus and/or communicated by the course instructor.

2. Using artificial intelligence tools to generate content for assignments or exams, including but not limited to language models or code generators, without written authorization from the instructor.
3. Unauthorized collaboration on assignments or examinations.
4. Taking an examination or completing an assignment for another person or asking or allowing someone else to take an examination or complete an assignment for you, including exams taken on a home computer.
5. Submitting content generated by another person or an AI tool or any other source as solely your own work as your own, including, but not limited to, material obtained in whole or in part from commercial study or homework help websites, or content generated or altered by AI or digital paraphrasing tools without proper citation.
6. Fabricating and/or falsifying data (in whole or in part).
7. Giving assistance to acts of academic misconduct/dishonesty.
8. Altering a response on a previously graded exam or assignment and then attempting to return it for more credit or a higher grade without permission from the instructor.
9. Submitting substantial portions of a paper or assignment to more than one course for credit without permission from each instructor.
10. Unauthorized use during an examination of notes, prepared answers, or any electronic devices such as cell phones, computers, smart watches, or other

technologies to copy, retrieve, generate or send information.

2. **Plagiarism** is the act of presenting ideas, research or writing that is not your own as your own. Examples of plagiarism include:
    1. Copying another person's or an AI tool's actual words or images without the use of quotation marks and citations attributing the words to their source.
    2. Presenting another person's ideas or theories in your own words without acknowledging the source.
    3. Failing to acknowledge collaborators on homework and laboratory assignments.
    4. Internet plagiarism, including submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, or "cutting & pasting" from various sources without proper attribution.
    5. Unauthorized use of AI-generated content; or use of AI-generated content, whether in whole or in part, even when paraphrased, without citing the AI as the source.
3. **Obtaining Unfair Advantage** is any action taken by a student that gives that student an unfair advantage in his/her academic work over another student, or an action taken by a student through which a student attempts to gain an unfair advantage in his or her academic work over another student. Examples of obtaining unfair advantage include:
    1. Stealing, reproducing, circulating or otherwise gaining advance access to examination materials.
    2. Depriving other students of access to library materials by stealing, destroying, defacing, or concealing them.

3. Retaining, using or circulating examination materials which clearly indicate that they should be returned at the end of the exam.

4. Intentionally obstructing or interfering with another student's work.
5. **Falsification of Records and Official Documents**

   Examples of falsification include:

   1. Forging signatures of authorization.
   2. Falsifying information on an official academic record.
   3. Falsifying information on an official document such as a grade report, letter of permission, drop/add form, ID card, or other college document.
   4. Falsifying medical documentation that has a bearing on campus access or the excuse of absences or missed examinations and assignments.

2. Methods for Promoting Academic Integrity
   1. The CUNY Policy on Academic Integrity, and, if applicable, the college's procedures for implementing the Policy, shall be posted to each college's website with a link provided in the Learning Management System (LMS) shell. It is recommended that the link also be included in each course syllabus. Orientation sessions for all new faculty (full- and part-time) and students shall incorporate a discussion of academic integrity.
   2. All college catalogs, student handbooks, faculty handbooks, and college websites shall include the CUNY Policy on Academic Integrity and, if applicable, college procedures implementing the policy and the consequences of not adhering to the Policy.
   3. Each college shall subscribe to an electronic plagiarism detection service and shall notify students of the fact that such a service is available for use by the faculty.Colleges shall make faculty aware of the availability of such services and faculty should inform students of their use.
3. Reporting

1. Each college's president shall appoint an Academic Integrity Officer in consultation with the elected faculty governance leadership. The Academic Integrity Officer shall serve as the initial contact person with faculty members when they report incidents of suspected academic dishonesty. The Academic Integrity Officer may be the college's Student Conduct Officer, another student affairs official, an academic affairs official, or a tenured faculty member. Additional duties of the Academic Integrity Officer are described in Sections 4.1., 4.2.1., 4.2.2., 4.3 and 4.4.
2. A faculty member who suspects that a student has committed a violation of the CUNY Academic Integrity Policy shall review with the student the facts and circumstances of the suspected violation whenever feasible. Thereafter, a faculty member who concludes that there has been an incident of academic dishonesty sufficient to affect the student's final course grade shall report such incident on a Faculty Report Form in substantially the same format as the sample annexed to this Policy and shall submit the Form to the college's Academic Integrity Officer, copying his/her Department Chair.Each college shall use a uniform form throughout the college, which shall contain, at a minimum, the name of the instructor, the name of the student, the course name and number, the date of the incident, an explanation of the incident and the instructor's contact information. All instances of academic dishonesty that are reported to the Academic Integrity Officer shall be recorded for documentation and tracking purposes.
3. The Academic Integrity Officer shall update the Faculty Report Form after a suspected incident has been resolved to reflect that resolution. Unless the resolution exonerates the student, as described in Section 4.4, the Academic Integrity Officer of each college shall place the Form in a confidential academic integrity file created for each student alleged to have violated the Academic Integrity Policy and shall retain each Form for the purposes of identifying repeat offenders, gathering data, and assessing and reviewing policies.Unless they exonerate the student, written decisions on academic integrity matters after adjudication also shall be placed in

the student's academic integrity file. The Academic Integrity Officer shall be responsible for maintaining students' academic integrity files.

4. Procedures for Imposition of Sanctions
    1. Determination on academic vs. disciplinary sanction.
    The Academic Integrity Officer shall determine whether to seek a disciplinary sanction in addition to an academic sanction.In making this determination, the Academic Integrity Officer shall consult with the faculty member who initiated the case and may consult with student affairs and/or academic affairs administrators as needed. Before determining which sanction(s) to seek, the Academic Integrity Officer also shall consult the student's confidential academic integrity file, if any, to determine whether the student has been found to have previously committed a violation of the Academic Integrity Policy, the nature of the infraction, and the sanction imposed or action taken.Prior violations include both violations at the student's current college and violations that occurred at any other CUNY college.In making the determination on prior violations, the Academic Integrity Officer shall determine whether the student previously attended any other CUNY college and, if so, shall request and be given access to the academic integrity file, if any, at such other CUNY college.
    The Academic Integrity Officer should seek disciplinary sanctions only if (i) there is a substantial violation; (ii) the student has previously violated the Policy; or (iii) academic sanctions may not be imposed because the student has timely withdrawn from the applicable course.Examples of substantial violations include but are not limited to: forging a grade form or a transcript; stealing an examination from a professor or a university office; having a substitute take an examination or taking an examination for someone else; having someone else write a paper for the student or writing a paper for another student; generating entire assignments or exam responses using AI without authorization, sabotaging another student's work through actions that prevent or impede the other student from successfully completing an assignment; and violations

committed by a graduate or professional student or a student who will seek professional licensure.The college also should consider any mitigating circumstances in making this determination.

2. Procedures in Cases Involving Only Academic Sanctions.
    1. Student Admits to the Academic Dishonesty and Does Not Contest the Academic Sanction.
       If a faculty member wishes to seek only an academic sanction (i.e., a reduced grade) and students do not contest either their guilt or the particular reduced grade the faculty member has chosen, then the student shall be given the reduced grade, unless the Academic Integrity Officer decides to seek a disciplinary sanction. The reduced grade may apply to the particular assignment as to which the violation occurred or to the course grade, at the faculty member's discretion. A reduced grade may be an "F" or another grade that is lower than the grade that the student would have earned but for the violation. The faculty member shall inform the Academic Integrity Officer of the resolution via email and the Officer shall update the applicable Faculty Report Form to reflect that resolution.
    2. Student Admits to the Academic Dishonesty but Contests the Academic Sanction.
       In a case where a student admits to the alleged academic dishonesty but contests the particular academic sanction imposed, the student may appeal the academic sanction through the college's grade appeal process.The student shall be allowed, at a minimum, an opportunity to present a written position with supporting evidence. The committee reviewing the appeal shall issue a written decision explaining the justification for the academic sanction imposed.

3. Student Denies the Academic Dishonesty
   In a case where a student denies the academic dishonesty, a fact-finding determination shall be made, at each college's option, by an Academic Integrity Committee established by the College's governance body or by the Student-Faculty Disciplinary Committee established under Article XV of the CUNY Bylaws. Each college's Academic Integrity Committee shall adopt procedures for hearing cases. (If a college opts to use its Student-Faculty Disciplinary Committee for this purpose, that Committee shall use Article IX procedures.) These procedures, at a minimum, shall provide students with (i) written notice of the charges against them; (ii) the right to appear before the Committee; and (iii) the right to present witness statements and/or to call witnesses. Those procedures also shall provide the faculty member with the right to make an appearance before the Committee and/or present supporting documents. The Committee may request the testimony of any witness and may permit any such witness to be questioned by the student and by the administrator presenting the case. Academic Integrity Committees and Student-Faculty Disciplinary Committees, as applicable, shall issue written decisions and send copies of their decisions to the college's Academic Integrity Officer. The Academic Integrity Officer may not serve on a college's Academic Integrity Committee.

3. Procedures in Cases Involving Disciplinary Sanctions.
   If the college decides to seek a disciplinary sanction, the case shall be processed under Article XV of the CUNY Bylaws.If the case is not resolved through mediation under Article XV, it shall be heard

by the college's Faculty-Student Disciplinary Committee.

If the college seeks to have both a disciplinary and an academic sanction imposed, the college shall proceed first with the disciplinary proceeding and await its outcome before addressing the academic sanction. The student's grade shall be held in abeyance by using the PEN grade established for this purpose, pending the Committee's action.If the Faculty-Student Disciplinary Committee finds that the alleged violation occurred, then the faculty member may reflect that finding in the student's grade.The student may appeal the finding in accordance with Article XV procedures and/or may appeal the grade imposed by the faculty member in accordance with section 4.2.2. If the Faculty-Student Disciplinary Committee finds that the alleged violation did not occur, then no sanction of any kind may be imposed.

Where a matter proceeds to the Faculty-Student Disciplinary Committee, the Academic Integrity Officer shall promptly report its resolution to the faculty member and file a record of the resolution in the student's confidential academic integrity file, unless, as explained below, the suspected violation was held to be unfounded.

4. Required Action in Cases of No Violation

   If either the Academic Integrity Committee or the Faculty- Student Disciplinary Committee finds that no violation occurred, the Academic Integrity Officer shall remove all material relating to that incident from the student's confidential academic integrity file and destroy the material.

5. Implementation

Each college shall implement this Policy and may adopt its own more specific procedures to implement the Policy. Colleges' procedures must be consistent with the policy and procedures described in the Policy. **CUNY BOT adopted a revised "Policy on Academic Integrity" on June 27, 2011, which went into effect on July 1, 2011 (6.27.2011.Cal.5.L). Amended and replaced on June 27, 2022. (6.27.2022. No. 4.F.)**

EXPLANATION Revision to the 2022 Academic Integrity Policy is necessary because the current policy does not address the advent of Artificial Intelligence and its use by students at CUNY.Preparing students to learn from and use AI responsibly and ethically is critical to the University's mission, to ensuring academic integrity, to

securing the rigor of the University's academic programs.Further, students must become facile with the use of AI to learn effectively in today's world and to prepare for their AI-assisted careers and lives in the future.