

STUDENT MANUAL

SCHOOL OF CITY AND REGIONAL PLANNING

COLLEGE OF DESIGN

GEORGIA INSTITUTE OF TECHNOLOGY

MASTER OF CITY AND REGIONAL PLANNING DEGREE

Academic Year 2022-2023

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I. INTRODUCTION

The Masters of City and Regional Planning (MCRP) Program provides each student with this Student Manual for several reasons. Foremost, this manual supplies answers to a host of questions that may arise during a student's time within the MCRP Program at Georgia Tech. An attempt has been made to include information on a wide range of student concerns and to provide a detailed explanation of Program requirements and applicable policies. **This manual should be consulted first whenever questions arise.**

The manual also serves as a contract between the School and its MCRP students. It includes many university rules and regulations, as well as School policies. Those policies are effective and binding for all students in the School of City and Regional Planning entering in the 2022-2023 academic year. Students enrolling at other times are bound by the policies in effect at the time they entered the MCRP Program. Students should retain the copies of the manual provided them upon entry into the School for reference during their entire period of enrollment. However, should any student fail to enroll at Georgia Tech for at least one semester during any academic year, the provisions of this manual may be superseded by provisions of the manual in existence at the time the student re-enrolls.

When changes in certain student policies are made, students already enrolled may, at their option, continue under either the former or new policies. Such policies include those pertaining to areas of concentration, final examinations, theses, and academic performance.

Any questions that are not answered by the manual should be referred to a student's advisor, the MCRP Program Director, or the School Chair. The School and its policies are subject to reconsideration through the participation of students and their duly elected representatives in faculty meetings.

II. THE GEORGIA TECH ACADEMIC HONOR CODE

Students enrolled in the City and Regional Planning are subject to the provisions of the Georgia Tech Academic Honor Code (see <http://www.policylibrary.gatech.edu/student-affairs/academic-honor-code>). **It is the responsibility of all students to read and agree to the provisions of this Code prior to their enrollment in the School. Further, it is the responsibility of all faculty members to report instances of violations of this Code to the Office of the Dean of Students.**

The Honor Code addresses an important aspect of a student's personal and professional development – a sense of integrity and place within a community. Planning students have even greater responsibilities in these areas since our field promotes ethical principles of integrity, honesty, fairness, and community membership. In short, when a student in our School violates the Honor Code s/he demonstrates a lack of professional competence that harms not only the individual involved but also the larger community of classmates, faculty, and the School by showing a lack of respect for their community and violating a sense of trust within that community. No acts of cheating, plagiarism, or unauthorized collaboration will be tolerated in the School. All such instances will be reported to the Dean of Students Office for investigation.

The Honor Code lays out at least three specific areas of academic misconduct. First, students are prohibited from *cheating* by copying each other's work (such as during an exam) or turning in the work of another student as one's own work.

The second form of academic misconduct is *plagiarizing the work of others*. The Honor Code defines plagiarism as:

Submission of material that is wholly or substantially identical to that created or published by another person or persons, without adequate credit notations indicating the authorship.

When a student's written work borrows ideas from elsewhere, the source must be cited in an appropriate manner as defined in the "Academic and Professional Writing Guide" of this manual or defined otherwise by the instructor. When exact phrasing is used, the source must be cited and the material must be marked by quotation marks or indented in the manner used above for the quotation from the Honor Code. Students must clearly distinguish their own work from the work of others.

In recent years, with the availability of materials on the Internet, problems with plagiarism have grown. Students have copied materials from sources on the web and inserted them directly or with minor editing into their work without citation. This constitutes plagiarism. Do not submit any assignments for a course that has text drawn word-for-word from another source (in print or on the web), without quotation and proper citation. Do not paraphrase the words in another document (in print or on the web) without proper citation. Any form of plagiarism is a violation of the Academic Honor Code.

The third form of academic misconduct is *unauthorized collaboration* on coursework. In city and regional planning, students will be required to work together in teams or encouraged to work together in small study groups on assignments. This form of collaboration is essential to the educational mission of the School. However, it is possible for students to violate the spirit of this collaboration by acting in unauthorized ways (for example, dividing up a homework assignment into several parts and doing your part, then copying the work of others). Faculty members have been asked to provide greater descriptions of what they mean by "appropriate" collaboration. Ultimately though, it is the responsibility of the student to clarify any questions that s/he may have and to ascertain whether the collaboration s/he has in mind is authorized or not. Unless it is spelled out clearly by the instructor as "appropriate," students should assume all else is inappropriate.

It should be noted that it is the policy of the School that those who knowingly assist a person in cheating or plagiarism are equally at fault and are subject to the same penalties.

If a student has a question about the Honor Code, s/he should contact the Office of the Dean of Students or the School of City and Regional Planning Chair.

III. CITY AND REGIONAL PLANNING FACULTY AND STAFF, 2022-2023

A. Academic Faculty

Gulsah Akar, Professor, Ph.D., University of Maryland, 2009. Sustainable Urban Mobility, Built Environment and Travel, Access and Equity, and Adoption of New Mobility Technologies.

Clio Andris, Associate Professor, Ph.D., MIT, 2011. Geographic Information Systems (GIS), Social Systems and Complexity, Social Network Dynamics, Connectivity Between and Within Cities.

Paige Clayton, Assistant Professor, Ph.D., University of North Carolina at Chapel Hill, 2020. Economic Development, Entrepreneurship and Innovation, and Science and Technology Policy.

Thomas Debo, P.E., Professor Emeritus, Ph.D., Georgia Institute of Technology, 1975. Environmental Planning, Stormwater Management, Water Resources.

Michael Dobbins, FAIA, AICP, Professor of Practice, M Arch, Yale, 1965. Former Commissioner, City of Atlanta Planning Development & Neighborhood Conservation Department. Urban Design, Development Controls.

William J. Drummond, Associate Professor, Ph.D., University of North Carolina, 1988. Geographic Information Systems, Land Use Planning, Computer Applications in Planning, and Planning Methods.

Michael L. Poirier Elliott, Associate Professor, Ph.D., MIT, 1984. Environmental Policy, Urban Design, Negotiation and Mediation, and Planning Process.

Steven P. French, FAICP, Professor, Ph.D., University of North Carolina, 1980. GIS, Land Use and Environmental Planning, and Computer Applications in Planning.

Alberto Fuentes, Assistant Professor in the Sam Nunn School of International Affairs, jointly appointed in the School of City and Regional Planning. Ph.D., MIT, 2014. Global Development, Political Economy of Industrial Transformation in Latin America.

Subhro Guhathakurta, Professor, Chair of School of City of Regional Planning and Director of Center for Geographic Information Systems, Ph.D., University of California, Berkeley, 1991. Geographic Information Systems, Environmental Planning, Urban Sustainability.

Larry Keating, FAICP, Professor Emeritus, Ph.D., Wisconsin-Madison, 1978. APA. Planning Process, Housing Policy, and Land Economics.

Nancey Green Leigh, FAICP, Professor, Ph.D., University of California, Berkeley, 1989. Economic Development, Brownfield Redevelopment, and Industrial Restructuring's Effect on Regional Economics.

Elora Lee Raymond, Assistant Professor, Ph.D., Georgia Institute of Technology, 2017. Real estate finance, Socio-spatial Inequality, Housing Market Dynamics, and Affordable Housing

Catherine L. Ross, Harry West Endowed Professor and Director of the Center for Quality Growth and Regional Development, Ph.D., Cornell University, 1979. Transportation Planning, Land Use, Travel Behavior and Transportation, Public Involvement, Economic Development, Human Services, Policy Planning, and Planning Methods.

David S. Sawicki, FAICP, Professor Emeritus, Ph.D., Cornell, 1970. Methods of Policy Analysis and Planning, Urban Policy, and Microcomputer Applications in Planning.

Bruce Stiftel, FAICP, Professor Emeritus, Ph.D., University of North Carolina, 1986. Land Use and Environmental Planning, Planning Theory, Planning School Performance.

Brian Stone, Professor, Ph.D., Georgia Tech, 2001. Urban Environmental Management, Urban Climate Change, Climate and Health.

Perry Pei-Ju Yang, Professor, Ph.D., National Taiwan University, 2001. Urban Design, GIS and Urban Simulation.

Adjunct and affiliated faculty are listed online at <http://www.planning.gatech.edu/people>.

B. Staff

Anna Traykova, Academic Advisor II

Sei Yoshioka-Cefalo, Academic Program Manager II

A more complete list of faculty, adjunct faculty, lecturers and affiliated instructors and staff can be found online at <http://www.planning.gatech.edu/people>.

IV. ADVISING

A. Orientation and Initial Advising

The School holds an Orientation Session for new graduate students during the week before classes start in the fall semester. At that time, general MCRP requirements are explained. Students are also assigned a faculty advisor. During the course of the Fall semester, students will work with their advisor to develop a Program of Study (POS), submitted to both the Faculty Advisor and the Academic Advisor. Students who wish to move to another faculty advisor may do so at any time with consent of the new advisor.

B. Ongoing Advising

The MCRP Program provides two important forms of advising for students.

- The faculty advisor is an important resource to students. This faculty member can provide useful advice about the student's academic interests, career choices, and course scheduling. The purpose of the advising arrangement is: (1) to assist students in developing a Program of Study that is consistent with and supportive of the student's career goals and (2) to assure both the student and the School that students are pursuing their program of study and satisfying matriculation and graduation requirements.
- The School also has a staff Academic Advisor to assist students throughout their academic career at Tech in understanding academic requirements, fulfilling important paperwork requirements, assisting in searches for part-time and permanent employment, and other academic services.

C. Program of Study

During their first semester, all incoming students will prepare a *Program of Study* to be signed by the student's faculty advisor and submitted to the Academic Advisor for inclusion in the student's file. The

fundamental purpose of the Program of Study is to assure that students are clear in their educational goals while at Georgia Tech and that their course of study will fulfill the requirements of the MCRP degree.

Variations from this Program of Study must be approved by the student's advisor. Students are responsible for revising their programs of study whenever they make a change, obtaining appropriate faculty approvals and signatures, and submitting the revised Program of Study to the Academic Advisor.

D. Applied Research Option Paper or Thesis Advising

Before enrolling for any applied research (option) paper or thesis hours, students must identify and obtain the approval of a City and Regional Planning faculty member (or a qualified substitute, approved by the MCRP Director) to serve as their advisor for their applied research paper or thesis work. This is usually done at the end of the second semester, and will need to be completed in time to enroll for Option Paper (CP 8990) or Thesis (CP 7000) units before the start of the third semester of study. The ARP/Thesis advisor does not need to be the same person as your program of study advisor.

The applied research paper requires students to demonstrate their ability to organize and execute professional-level work in consultation with a faculty member. Students choosing to write an applied research paper must register for a total of 4 credit hours of CP 8990, typically 1 credit in fall and 3 in spring of their second year.

A thesis provides students with an opportunity to pursue advanced research under the guidance of a faculty committee. In the case of the thesis, students shall nominate one other member of the planning faculty to chair the committee and one other person to serve on the thesis committee during the first semester in which they are enrolled for thesis hours. The MCRP Program Director shall approve, disapprove, or modify the nominations. The "Thesis and Dissertation Manual," published by the Office of Graduate Studies, details the approval procedure, format, and stylistic requirements for the thesis. More information can be found here: <https://grad.gatech.edu/theses-dissertations>. Students who choose to write a thesis must register for a total of 10 semester credit hours of CP 7000, typically 2 credits in fall and 8 credits in the spring of their second year.

V. COURSE REQUIREMENTS

A. Objectives and Organizing Principles

The School curriculum seeks to achieve the following objectives:

- Provide students with a solid grounding in the common core of planning theory and practice
- Maximize student proficiency within an area of specialization
- Demonstrate competence in defining, investigating, analyzing, and addressing planning problems of interest to the student
- Promote opportunities for advanced planning study by interested students

The resulting curriculum provides for cumulative learning within the core and specializations, completion of a studio, an internship and an applied research paper or thesis, and allows for specialized courses of interest to the student. In total, 55 units are required to obtain the MCRP degree.

Requirements	Applied Research Paper Option	Thesis Option
Core courses	21	21
Capstone courses		
Studio	5	5
Applied Research Paper/Thesis	4	10
Specialization	12	12
Electives	13	7
Internship		
TOTAL	55	55

B. Typical Schedule for Full-Time Students

Year/Semester	Course #	Course Name	Semester Hours
1/Fall	CP 6035	History and Theory of Urban Planning	3
	CP 6036	Community Dynamics and Engagement	2
	CP 6025	Advanced Planning Methods	4
	CP 6514	Intro to Geographic Information Systems (also offered in Spring and Summer) or Specialization or Elective	3
		Specialization or Elective	3
		TOTAL FOR FALL/1	15
1/Spring	CP 6037	Planning Law, Regulation and Implementation	3
	CP 6031	Economic Analysis of Planning	3
	Methods	Methods Distribution Requirement	3
	CP 6514	Specialization or Elective Courses (and/or CP 6514 Intro to Geographic Information Systems if not taken in the Fall)	6
		TOTAL FOR SPRING/1	15
1/Summer		Internship	

Depending on whether the student enrolls in their studio course in the Fall or the Spring semester, the second-year curriculum will appear different. Alternative 1 below indicates the typical second-year schedule for a student taking the studio course in the Fall.

Alternative 1: Second-Year Schedule for Fall Studio

Year/Semester	Course #	Course Name	Semester Hours
2/Fall	CP6055	Applied Planning Studio	5
	CP8990	Applied Research Paper Specialization or Electives	1 9

		TOTAL FOR FALL/2	14
2/Spring	CP8990	Applied Research Paper	3
		Specialization or Electives	11
		TOTAL FOR SPRING/2	14
OVERALL TOTAL			55

Alternative 2 below illustrates the typical schedule for a student taking his/her studio requirement in the Spring semester of his/her second year in the School.

Alternative 2: Second-Year Schedule for Spring Studio

Year/Semester	Course #	Course Name	Semester Hours
2/Fall	CP8990	Applied Research Paper	1
		Specialization or Electives	14
		TOTAL FOR FALL/2	15
2/Spring	CP6055	Applied Planning Studio	5
	CP8990	Applied Research Paper	3
		Specialization or Electives	6
		TOTAL FOR SPRING/2	13
OVERALL TOTAL			55

C. Transfer Credit

Credit may be granted against the 55-hour requirement for graduate courses taken elsewhere prior to enrollment. The Institute’s upper limit for transfer credit is nine semester credit hours. Courses for which transfer credit is requested must meet the following minimum requirements:

- They were not part of the requirements of any degree previously completed or currently in progress, with the exception of courses taken to meet the requirements of formal dual degree programs with the MCRP Program.
- They were graduate level courses of comparable rigor to courses in the MCRP Program.
- Their subject area is closely related to that of School courses.

Requests for transfer credit should be made to the MCRP Director by the first business day of the fifth week of the first semester in which the student is enrolled in the School. The request must be accompanied by: (1) an official transcript of the institution that granted courses for which credit is being requested, (2) syllabi of those courses, and (3) a substantial sample of work completed for those courses. The minimum acceptable grade for transfer courses is “B.” The MCRP Director shall decide whether to grant all or any part of the transfer credit request before the end of that semester. The MCRP Program Director may seek the advice and consent of the faculty on any such request.

D. Undergraduate Courses Taken While in MCRP Degree Program

No CP prefix undergraduate courses may be counted toward the requirements for the MCRP degree. MCRP students may enroll in and receive credit for course work at the 4000 level or above taken at Georgia Tech outside of the School of City and Regional Planning provided they are part of an approved program of study. Students can use up to 6 semester hours of 4000-level courses toward their 55-credit hour Program of Study. Courses with numbers less than 4000 cannot be used toward a graduate degree in planning.

E. Courses Taken at Georgia Tech as an Undergraduate

No student who takes undergraduate courses offered by the School while an undergraduate at Georgia Tech can use those courses toward the MCRP degree. Undergraduate students who take graduate courses at Georgia Tech, however, may apply up to 6 hours of those courses toward the degree, if admitted to the School, provided these courses were not used for any undergraduate degree requirements and provided they are approved by the MCRP Program Director.

F. Cross-Registration for Courses Taken at Other Atlanta Region Universities

Through cross-enrollment, coursework taken at Georgia State University (GSU), the University of Georgia (UGA), Emory University, and other Atlanta Regional Consortium for Higher Education (ARCHE) members (<https://www.atlantahighered.org/>) may be applied directly against the 55 semester-hour requirements of this School and not counted as transfer credits. These courses must be part of a student's approved program of study and comparable courses must not be available at Georgia Tech. To cross-enroll at one of these institutions, you must submit a departmentally approved cross-enrollment form to the Georgia Tech Cross-Registration person in the Registrar's Office on or before a specified date. Be aware that the cross-enrollment deadline for Fall Semester occurs during the summer when most students are off campus, usually by mid-July. The deadline to apply for cross enrollment for Spring Semester is on or around November 15.

G. Student's Responsibility for Proper Registration

It is the responsibility of the student to ensure that the Institute's official course enrollment information pertaining to him or herself is correct. Failure to correct registration information can lead to negative consequences. For example, if a student does not successfully drop a course prior to the deadline printed in the OSCAR (which is typically the fifth week of the semester), and does not complete the course, a letter grade of "F" will be assigned. For this reason, it is a good idea for all students to print and retain a copy of their course schedule when registering for or adding/dropping courses.

Please note that the last day to add a course is the Friday of the first full week of classes. Therefore, it is critical that you be fully registered for all courses you believe you will take in the semester by this deadline. You may drop courses at any time up to the fifth week of the semester (check the OSCAR for the exact deadline). A grade of "W" will show on your internal transcript for those courses dropped after the first week of classes and before the final drop deadline. External transcripts (sent to individuals or organizations outside Georgia Tech) will not list the dropped course.

VI. Required Courses

The MCRP curriculum consists of six core courses and a distribution requirement in methods (21 credit hours), plus two capstone courses including a studio and either a thesis of 10 credit hours or an applied research paper of 4 credit hours. Core courses are designed to provide students with the necessary skills and background for more advanced work. All core courses must be completed unless formally waived due to previous coursework. Core courses must be passed with a “C” or better grade.

A. Core Courses and Their Sequencing

It is important for students to take the core courses in their proper sequence. **A student should not postpone taking a core course that has not been waived.** Part-time students, students in dual degree programs, and those entering the School in spring semester should be particularly careful in planning their program of study to avoid later problems with electives which assume knowledge of the core material, and with core courses which build upon previous core courses. The core courses and their recommended sequence of study are described below.

Core Courses

First Year, Fall Semester

CP 6035: History and Theory of Urban Planning
CP 6036: Community Dynamics and Engagement
CP 6025: Advanced Planning Methods

First Year, Spring Semester

CP 6037: Planning Law, Regulation and Implementation
CP 6031: Economic Analysis in Planning
Methods Distribution Requirement (3 credit hours)

First Year, Fall, Spring or Summer Semester

CP 6514: Intro to Geographic Information Systems

Capstone Courses

CP 6055: Applied Planning Studio (Fall or Spring)
Applied Research Paper or Thesis (full year sequence, fall and spring)

B. Methods Distribution Requirement

Students may fulfill the methods distribution requirement by taking at least 3 credit hours from the following list of classes. In addition, quantitative and qualitative research design and methods courses offered by the School of City and Regional Planning, by other Schools at Georgia Tech or by other universities may be used to meet this requirement if approved by the MCRP Program Director.

CP 6005	Drawing for Planners
CP 6006	Visualization for Plan
CP 6024	Quantitative and Computer Methods
CP 6521	Advanced Geographic Information Systems
CP 6531	Introduction to Remote Sensing
CP 6541	Environmental Analysis Using GIS

CP 6542	Transport & GIS
CP 6543	Public Health Analytics
CP 6551	Spatial Analysis of Socioeconomic Data
CP 6561	Geodemographics: Data Sources and Methods
CP 6570	Socioeconomic GIS
CP 6680	Citizen Participation and Community Engagement
CP 6760	Negotiation and Conflict Management
CP 8400	Research Design and Qualitative Methods
CP 8505	Advanced Quantitative Research Methods for Planning, Policy and Design
CP 888x.	Special Topics in City and Regional Planning: Research Design and Methods
PUBP 6112	Research Design in Policy Science
PUBP 6218	Quantitative Models in Public Policy

C. Waiver of Core Courses

Occasionally, students will have satisfactorily completed coursework elsewhere that is comparable to courses in the core. In those situations, students may apply for a “waiver” from taking certain required core courses. Three courses in the core, CP6031 (Economic Analysis in Planning), CP6025 (Advanced Planning Methods) and CP 6514 (Introduction to Geographic Information Systems) are eligible to be waived (all or in part) for students who have completed comparable courses in microeconomics, statistics, or GIS prior to enrolling in the School.

Requests for a waiver of course requirements should be made immediately upon enrolling in the School in the Fall semester and must be made no later than the first week of classes in the semester in which the course is offered. A Course Waiver Approval Form is available from the School Academic Advisor. This form must be accompanied by: (1) an official transcript of the institution that granted credit for the course(s) on which the waiver is requested, (2) syllabi of the course(s), and (3) a substantial sample of work completed for the course(s). The minimum grade in the course(s) is “B,” but the School reserves the right to require an “A” based on the type of course, the grading scheme, and the rigor entailed relative to the course requested for waiver. The course waiver approval form requires signatures from the instructor of the course to be waived and the MCRP Program Director.

The administration of an exam to determine a waiver is at the discretion of the instructor of any of these courses.

For CP6025 (Advanced Planning Methods), prior coursework must include upper-division undergraduate or graduate level courses covering multivariate regression or econometrics in which the student received a letter grade of “B” (not B-) or better for undergraduate courses or “A-” or better for graduate courses within the past five years. In rare cases, extensive work experience employing multivariate statistics, together with at least an intermediate statistics course, might suffice.

Waiver of any course does not reduce the 55 semester-hour requirement. When students have required courses waived, they must substitute elective courses of equal or greater credit.

In the event the waiver request is denied, the student must enroll for and complete the subject course in the normal course of study. If the waiver is requested for a course offered during the semester in which the waiver is processed, the student must enroll in that course and perform assignments in that course

until the waiver is decided. In this way, if the waiver is denied, the student will not have lost valuable time toward matriculation. In those situations, however, the MCRP Program Director will endeavor to decide the request not later than the end of the second week of that semester.

VII. SPECIALIZATIONS

The MCRP Program prepares graduate students to function as professionals who are capable of understanding and resolving planning problems in depth. Therefore, students are required to develop depth in at least one area of specialization. To enable students to focus their education on a consistent and cumulative body of knowledge, the School offers the following six specializations:

- A. Economic Development
- B. Environment and Health Planning
- C. Global Development
- D. Housing and Community Development
- E. Land Use
- F. Transportation
- G. Urban Design

Courses that constitute each specialization are listed below. Each specialization requires a minimum of 4 courses and 12 credit hours, with two or three of these courses specifically required and the remaining requirements satisfied by a selection from other associated courses. Students are encouraged to take additional courses in their specialization through other programs at Tech, Georgia State, or in some cases, Emory. Faculty members who have expertise in a specialization are also indicated below.

In keeping with the highly interdisciplinary nature of planning, students with an interest in more than one area of specialization are encouraged to use elective hours to fulfill, in part or in whole, the required courses for a second specialization. Coursework used to fulfill one specialization can also be used to fulfill a second specialization if the coursework is listed as supporting both specializations. Fulfilling the requirements for two specializations may therefore take as many as eight courses or, when elective courses overlap, as few as six courses.

A. Economic Development

Economic development planning seeks to build a stable economic base that preserves and raises a community or region's standard of living through sustainably developing its human and physical infrastructure. Economic development planners address issues such as the following:

- How do we create resilient economies that can successfully adjust to restructuring and recover from economic or natural disasters?
- How can we improve the quantity and quality of jobs in a community?
- How can we insure there are community economic benefits from proposed large scale projects such as a proposed convention facility?
- What can we do to revitalize an area suffering from commercial or industrial decline? From the presence of brownfields?
- How can we promote entrepreneurship and technology start-up ventures?
- How can we use the tools of economic development to address inequalities between places and demographic groups?

While the broad fields of economic development overall is concerned with the promotion of jobs, businesses, land and infrastructure for community and regional growth, its practice from a planning and public policy perspective also incorporates issues of equity, access, distribution, and quality of life for individuals, communities, regions, and nations. The context for economic development changes continuously with shifts in economic structures, rapid technological development, increased globalization, climate change, and ongoing debate about the role and effectiveness of planning and public policy in tackling development issues.

The City of Atlanta, surrounding metro region, and state of Georgia are quintessential laboratories for students interested in the economic development planning. Further, Georgia Tech plays a major role in the state's technology-based economic development as well as a larger role in developing many of the innovations that fundamentally reshape the global economy. The Georgia Tech Enterprise Innovation Institute is a major center for economic development assistance and research (where students frequently find graduate assistantships). There are numerous community and regional groups focused on economic development issues. The many SCaRP graduates are practicing economic development planning in the metro area are a major resource for the concentration.

Student interns and graduates with economic development concentrations find jobs in local, state and federal government, with non-governmental organizations (development authorities, community development organizations, business/community improvement district staff...), and with the private sector (large and small consulting firms, real estate developers...) The demand for economic development planners and policy analysts is present in strong and weak economic periods.

The economic development specialization gives students the opportunity to study the conceptual foundations of the field, learn key analytical techniques, and apply this knowledge to practical economic development issues in local, regional, national, and international contexts. Students learn how industrial restructuring and technological advances frame the possibilities for economic development, and how economic development is dependent upon conditions of land use, infrastructure, housing, and the environment.

Required courses in the Economic Development specialization are:

CP 6412	Foundations of Local Economic Development Planning and Policy
CP 6422	Economic Development Analysis and Practice

Students must also take two additional courses (minimum of 12 credit hours total) in their particular interest area in economic development from the School of City and Regional Planning, the School of Public Policy, other Georgia Tech units, or at Georgia State University. Available courses include:

CP 6432	Industrial Restructuring and Its Planning Implications
CP 6442	Equity, Social Justice, and Economic Development
CP 6452	Urban Development Policy (joint-listed as PUBP 6606)
CP 6351	Transportation and Economic Development (offered infrequently)
CP 6551	Spatial Analysis - Socioeconomics
CP 6611	Real Estate Finance and Development
PUBP 6604	Methods of Urban Policy Analysis and Practice
PUBP 6415	Technology, Regions, and Policy (offered biennially)

ECON 6360 Development Economics or ECON 8600 (GSU) Economics of Development
(international course)

Other related courses of interest to those studying economic development include those in community development, labor economics, urban economics, public finance, real estate, science and technology policy, housing, and international development. Students can customize the electives they take in the economic development field, and also combine their interests in economic development with other concentrations.

Core faculty in economic development include Professors Nancey Green Leigh, Paige Clayton and Brian An (Public Policy).

B. Environment and Health Planning

Environment and health planning integrates knowledge and tools from the fields of environmental management and public health to better understand how the management of the built environment influences human and ecosystem health. As human health criteria are increasingly employed in the design and management of the built environment of cities, the environment and health specialization explores the physical pathways through which land use and urban design influence environmental quality, and how environmental quality, in turn, influences human health. Contemporary examples of environment and health planning include climate-responsive design, health impact assessment, green building, brownfield redevelopment, renewable energy planning, and urban agriculture, among many other applications. In light of the highly interdisciplinary nature of the environment and health specialization, coursework is designed to emphasize the scientific and regulatory foundations of environmental management and public health, analytical tools to measure environment and health interactions, and the design and implementation of policies to improve health and ecosystem outcomes associated with the built environment.

School graduates with expertise in environment and health planning are prepared for employment in a number of areas. Traditional areas of employment include private firms, as consultants to a range of land development activities, and all levels of government, as policy analysts, regulators, and as sustainability program directors or managers. Environment and health planners are also commonly employed in non-governmental organizations with a diverse range of missions focusing on natural resource protection, public health, energy conservation, and environmental justice.

To prepare students for employment in this area of planning, the environment and health specialization requires the following three courses:

CP 6223/PUBP 6314	Policy Tools for Environmental Management
CP 6213	Urban Environmental Planning and Design
CP 6850	Built Environment and Public Health

There are no prerequisites for these courses, so they can be taken by students within the environment and health specialization or by students in other specializations wanting to understand the basics of environmental planning.

In addition, students must take four additional credit hours (minimum of 12 credit hours total) that supports the environment and health planning specialization, which may be selected from those listed below or as approved by the student's advisor.

CP 6105	Land Conservation
CP 6190	Intro to Climate Change Planning
CP 6217	Climate Change and the City
CP 6233	Sustainable Urban Development
CP 6241	Water Resource Planning
CP 6243	Health Impact Assessment
CP 6261	Environmental Law (same as PUBP 6330 or GSU LAW 7200)
CP 6541	Environmental Analysis using GIS
CP 6531	Introduction to Remote Sensing
CP 6760	Negotiation, Facilitation and Conflict Management
CP 6836	Urban Ecological Design
CP 6850	Public Health and the Built Environment
CETL 6490	Advanced Environmental Data Analysis
EAS 4410	Climate and Global Change
EAS 6111	Earth System
EAS 6132	Introduction to Climate Change
EAS 6135	Introduction to Complex Environmental Systems
EAS 6792	Air Pollution Meteorology
CEE 4310	Water Quality Engineering
CEE 6625	Transportation, Energy, and Air Quality
CEE 6241	Water Resources Management
PUBP 6300	Earth Systems
PUBP 6312	Economics of Environmental Policy
PUBP 6329	Environmental Policy and Implementation
PUBP 8803	Sustainable Energy and Environmental Management
PUBP 8803	Sustainability and Environmental Policy
PUBP 8803	Environmental Policy and Politics
PH 7150	Environmental Health (GSU)
PH 7285	Social Determinants of Health (GSU)
BSHE 535	Macrosocial Determinants of Health (Emory)

Students interested in environmental justice issues may want to contact the Environmental Justice Resource Center at Clark-Atlanta University for more information.

Students in this specialization are well situated to obtain the Certificate of Sustainable Energy and Environmental Management (CSEEM) offered by the School of Public Policy. See Section XI below for more information.

Core faculty in environment and health planning include Professors Michael Elliott, Brian Stone and Arthi Rao (Center for Quality Growth and Development).

C. Global Development

Global Development seeks to improve the lives of individuals worldwide by addressing critical challenges of rapid urbanization, climate change, poverty and inequality, and the socio-economic wellbeing of individuals worldwide. The specialization is guided by the United Nation's Sustainable Development Goals (SDG), in order to "end poverty, protect the planet, and ensure that all people enjoy peace and prosperity". The specialization seeks to compare insights and lessons at the state and non-state-levels and across the North-South divide and to prepare students for planning sustainable futures for cities and regions across the globe, ones that are economically viable, environmentally sound, and socially just.

Courses will cover a wide variety of topics on the theory, methods, and application of global development. The goal of the 12-credit hour certificate is to increase marketability for students seeking employment opportunities in organizations dedicated to addressing economic development, urban and regional planning, environmental problems and international affairs.

Required Courses

- CP6704: Introduction to Global Development
- INTA 6302 International Political Economy

Elective Courses

- CP 6233 Sustainable Development
- CP 6412 Economic Development Planning
- CP 6422 Economic Development Analysis
- CP 6442 Equity, Justice and Economic Development
- CP 6612 Community Development
- CP 6680 Citizen Participation
- CP 8303 International Development Planning
- ECON 6360 Development Economics
- ECON 6650 International Economics and Policy Analysis
- INTA 6306. Globalization
- INTA 6740 Innovation, the State and Industrial Development in International Perspective
- INTA 6745. Information and Communication Technologies and Global Development
- INTA/ECON 8803: Graduate Capstone in Global Development

Students specializing in Global Development may be interested in the Graduate Certificate in Global Development is offered by the School of Economics, Sam Nunn School, and the School of City and Regional Planning. The certificate provides graduate-level training in principles and methods of global development through multidisciplinary courses. See <https://econ.gatech.edu/graduate/certificates>.

Core faculty in global development include Professors Alberto Fuentes and Bruce Stiftel (emeritus).

D. Housing and Community Development

The *housing and community development* specialization's central goal is providing students with the knowledge and skills to guide the housing, community, and real estate development activities of public, private, and/or nonprofit institutions. Graduates pursue careers in all three sectors, and, because contemporary development frequently involves multiple sectors, understanding how the differing perspectives of each sector shape their approaches to development is essential.

A second aim of the specialization is to focus the acquisition of knowledge and skills on urban and suburban real estate development and infill, in both the residential and commercial sectors. This is where much and perhaps most future development will take place over the next generation.

The housing and community development specialization addresses a wide range of analytical and development skills such as: (1) analyzing project net present value and internal rate of return under different tax and concession scenarios; (2) organizing community development action at the neighborhood and grass-roots level to achieve equitable community outcomes; (3) analyzing the impacts of public subsidy mechanisms such as tax abatement, tax increment financing, subsidized loans, historic preservation tax credits, and sale-leaseback financing on project feasibility; (4) assessing distinctions between the market concepts of "demand" and the social and political constructs of "need;" (5) evaluating the impact of subsidy programs as the Low Income Housing Tax Credits, New Markets Tax Credits, mortgage subsidy programs, and others on meeting low income housing and community development needs; and (6) investigating how real estate markets function within ever-evolving market and institutional contexts.

The specialization prepares students for careers in housing, community, and real estate development occupations with planning and/or development authorities, public housing authorities, local land banks, and state housing or development authorities. Private sector careers include real estate research firms, private development companies, financial institutions, and development consortia. Nonprofit sector careers include nonprofit developers, community-based community development corporations, development intermediaries, and technical assistance providers.

The housing and community development specialization requires three foundational courses: a course in real estate finance and development (CP 6611 Principles of Real Estate Finance and Development), a course in housing planning and policy (CP 6630 Government and Housing Markets), and a course in community development policy and practice (CP 6612 Community Development). It also requires the selection of two additional courses from a range of alternatives offered by the School of City and Regional Planning and the School of Public Policy. However, courses from elsewhere on campus, at Georgia State, or at Emory University are also possible good fits for the specialization.

The three foundation courses must include:

CP 6611	Real Estate Finance and Development
CP 6612	Community Development
CP 6630	Government and Housing Markets

In addition, students must take one additional course (minimum of 12 credit hours total) that supports the housing and community development specialization, which may be selected from those listed below or as approved by the student's advisor.

CP 6112	Introduction to Land Use
CP 6233	Sustainable Urban Development
CP 6640	Applied Real Estate Methods
CP 6832	Introduction to Urban Design
CP 6834	Urban Design Policy: Analysis and Implementation
CP 6442	Equity, Social Justice and Economic Development
CP 6412	Foundations of Local Economic Development Planning and Policy
CP 6422	Economic Development Analysis and Practice
CP 6233	Sustainable Urban Development
CP 6452	Urban Development Policy
CP 6836	Urban Ecological Design
PUBP 6604	Urban Policy Analysis and Planning

Additional graduate courses at Georgia Tech, Georgia State, or Emory University might be eligible to be considered as the housing and community development specialization courses, subject to the approval of at least one member of the specialization faculty (currently only Professor Kim) and your advisor. However, the three foundational courses will not be waived without an explicit course waiver from the instructor and your advisor, per the usual requirements.

Core faculty in Housing and Community Development include Professors Elora Raymond, Mike Dobbins and Jennifer Hirsch (Center for Serve-Learn-Sustain).

E. Land Use Planning

Historically, *land use planning* has formed the core of the planning profession and provided more planning jobs than any other specialization. Some land use planners create comprehensive plans to guide all aspects of development, while others work in the day-to-day administration of zoning ordinances and subdivision regulations. Land use planners also develop financing plans for the delivery of future public services, and evaluate the diverse impacts of proposed residential, commercial, or industrial development.

Most land use planners work directly for public agencies, but a substantial number also work for consulting firms that provide services to the public and private sectors. All land use planners work to integrate the full range of planning activities in urban design, housing, economic development, transportation, environment, and information systems in order to create cities that are efficient, fair, and sustainable places.

In recent years, land use has emerged as one of the key components of sustainability. Land use decisions have direct and massive impacts on water quality, air quality, biodiversity, energy consumption, and nearly every other aspect of sustainability. Land use planners can be found in the forefront of debate over many of the great planning issues of the day, including fighting sprawl, encouraging smart growth, pursuing neo-traditional development, preserving greenspace, and enabling sustainable development.

The land use specialization requires two courses. One course focuses on planning for development, while the other emphasizes the protection of land from development:

CP 6112	Introduction to Land Use
CP 6105	Land Conservation

In addition, students must take two additional courses (minimum of 12 credit hours total) that supports the land use specialization, which may be selected from those listed below or as approved by the student's advisor.

CP 6213	Urban Environmental Planning & Design
CP 6233	Sustainable Urban Development
CP 6331	Land Use & Transportation Interaction
CP 6611	Principles of Real Estate Finance and Development
CP 6630	Government and Housing Markets
CP 6311	Introduction to Transportation Planning
PUBP 6300	Earth Systems

Georgia State University Courses related to Land Use

Econ 8300	Urban Economics
Law 7320	Land Use Law
PAUS 8031	Urban Political Economy
PAUS 8351	Local Governance/Local Government
Geog 6768	Metropolitan Atlanta

Core faculty in land use planning include Professors Bill Drummond and Subhro Guhathakurta, and Steve French.

F. Transportation Planning

The specialization in *transportation planning* is designed to provide students with the ability to conceive, consider, and to assess the implications of supply and demand side strategies to enhance local accessibility and regional mobility within the context of an urban system. At the heart of building the student understanding of the role of transportation within the City and Regional Planning framework at Georgia Tech are critical linkages with macro scale aspects of land use, urban form, and regional spatial structure and micro-scale aspects of urban design, site design, and non-motorized movement.

The transportation planning specialization is designed to address issues such as the consideration of:

- equity, environmental, and economic trade-offs between alternative transportation investments;
- inter-governmental issues in reaching regional consensus over transportation investments;
- secondary implications of transportation investments on economic development and urban form;
- physical activity and health implications of alternative transportation investment futures;
- impact of auto dependence and the need for providing travel choices;
- role of transportation supply and demand side solutions;
- land use as a travel demand management strategy; and
- benefits and burdens of alternative transportation and land development proposals for low income and minority populations.

Therefore, it is the interactions between transportation investment and other planning considerations including land use, urban design, environmental quality, and economic development that bring the greatest strength to the transportation planning specialization here at Georgia Tech. This specialization has been historically supported through faculty resources in the School of City and Regional Planning combined with those in the School of Civil and Environmental Engineering.

Students who have pursued the transportation planning concentration are highly competitive in the market place and find careers in local, regional, state, and federal agencies and within the private sector. Transportation planning tends to be amongst the highest paying areas within City and Regional planning. Historically, the demand for transportation planners has been very high.

The transportation planning specialization has three required courses:

CEE/CP 6701 Urban Transportation Planning
CEE/CP 6702 Urban Transportation Planning Laboratory
CP 6321 Transportation Planning Methods and Investment Decisions

In addition, students must take two additional courses (minimum of 12 credit hours total) that supports the transportation specialization, which may be selected from those listed below or as approved by the student's advisor.

CP 6331 Land Use – Transportation Interaction
ECON 6340 Transportation Economics
CP 6361 Regional Transportation Planning and Administration
CEE 6601 Statistics in Transport
CEE 6622 Travel Demand Analysis
CEE 6625 Transportation, Energy, and Air Quality
CEE 6632 Simulation in Transportation
CEE 6642 Transit Systems Planning and Design
CP 6542 Transportation and GIS

Two courses in transportation are also available at Georgia State.

PAUS 8611 Transportation Management
PAUS 8621 Transportation and Land Use Economics

Core faculty in transportation planning are Professors Gulsah Akar and Catherine Ross. Faculty in Civil and Environmental Engineering include: Professors Randall Guensler, Laurie Garrow, and Adjo Amekudzi,.

There is also a dual degree program with Civil and Environmental Engineering in the area of transportation (see Section XII. below).

G. Urban Design

The School of City and Regional Planning offers four alternatives for those who seek to work directly in the process of *urban design* and city building. Students may

1. specialize in urban design within the Master of City and Regional Planning degree,

2. pursue the dual degree program that leads to the Master of Architecture and the Master of City and Regional Planning degrees, as described Section XII of this manual,
3. concurrently pursue the MCRP at Georgia Tech and the Masters of Urban Planning at Tongji University in Shanghai, China, as described in Section XII of this manual, or
4. complete the MCRP and continue into the 3-semester Master of Science in Urban Design, a post-professional degree program requiring its own application and prior completion of a professional degree (e.g., the MCRP), as described at <http://www.arch.gatech.edu/academics/masters/msud>.

The urban design specialization within City and Regional Planning is intended for planners who seek to engage effectively with architects, landscape architects, civil engineers and developers in their range of specializations, and with institutions involved in creating urban form and especially the public environment. Students will develop an understanding of how planning and policy alter the character and functionality of the built environment through the legal, regulatory, economic, and social contexts within which urban design may occur. Students will learn concepts and approaches used by architects, landscape architects and civil engineers in the design of urban places, and will learn to develop plans and policies that support good urban design.

The curriculum builds upon five major bodies of material:

- Urban history and design theory as a way of understanding the infrastructural and architectural order of the city;
- The interplay between the private and public sector in conceptualizing infrastructure and development projects, including their economic and policy parameters;
- The processes, methods and techniques necessary to engage urban design and development practices and influence positively policies and strategies that can be implemented in a private market regulated by public bodies;
- A system perspective of analyzing energy performance, material life cycle, water flows, ecology and human movement in cities; and
- Visualization tools or information systems for managing the processes of data representation, performance evaluation and design decision for the making of future sustainable urban systems.

In support of this specialization, the Schools of Architecture and City and Regional Planning offer a sequence of introductory courses in urban design and several related elective courses. The courses are open to all planning students. However, those interested in the urban design specialization and future practice in the field serve themselves well to either have or pursue an introductory, academic or professional background in a design-related field, such as architecture, engineering, or landscape architecture. Students without this background in design and physical dimensionality are strongly advised to enroll in CP 6005 (Drawing for Planners), CP 6514 (Introduction to GIS), and digital media courses as they are offered, to learn the basics of scale, dimensionality and representation. Students are also encouraged to take two urban design focused studios, one as the required MCRP studio course and the other as an elective, to gain more studio experiences. In addition, such students should be looking to other design-related courses, presentations and events in the School of Architecture, and related events sponsored by professional organizations in the City that may fill in their needs for conversancy with design principles.

The demand for urban designers, including city planners and related professionals, has been growing steadily with the awareness of the pivotal role the physical environment plays in improving quality of life in ever-growing urban regions.

Courses required in the urban design specialization include:

CP 6834 Urban Design Policy and Implementation
CP 6836 Urban Ecological Design

And one of the following two courses:

ARCH 6151 Theories of Urban Design
COA 6151 History of Urban Form

In addition, students must take one additional course (minimum of 12 credit hours total) that supports the urban design specialization, which may be selected from those listed below or as approved by the student's advisor.

COA 6120 Retrofitting Suburbia
CP 6832 Introduction to Urban Design
CP 8823 Site Planning and Urban Simulation
CP 6005 Drawing for Planners (1 credit, needing at least 2 more CHs from this list)
CP 8881 Visualization for Planners (1 credit, needing at least 2 more CHs from this list)
CP 6190 Introduction to Climate Change
CP 6241 Water Resource Planning
CP6850 Public Health and the Urban Environment
CP 6112 Introduction to Land Use Planning
CP 6213 Urban Environmental Planning & Design
CP 6311 Introduction to Transportation Planning
CP 6331 Land Use and Transportation Interaction
CP 6611 Introduction to Real Estate Finance and Development
CP 6640 Applied Real Estate Methods
CP 6422 Economic Development Analysis and Practice
CP 6760 Negotiation, Facilitation and Conflict Management
Arch 6151 Theories of Urban Design
Arch 6153 History and Theory of the Modern City
Arch 6228 Analytic Investment in Urban Design
Arch 7041-2 Urban Design Workshop
BC 6175 Real Estate Development and Construction
CEE 8813 Complete Streets Design
LMC 6650 Project Studio, Local Data
PubP 6604 Urban Policy Analysis
PubP 6740 Social Justice and Design

Core faculty in urban Design include Professors Mike Dobbins, Perry Yang and Ellen Dunham-Jones (Architecture).

VIII. THESIS AND APPLIED RESEARCH PAPERS

All students must complete either a 10-credit thesis or a 4-credit applied research paper. The thesis and applied research paper are different in purpose, scope, structure and style.

A thesis investigates an original issue of planning or public policy to create new knowledge using research design to formulate a hypothesis and develop a method for testing the hypothesis. The School encourages students, especially those with a research orientation, to undertake the writing of a 10-semester credit thesis. Based on this research, a thesis provides generalizable conclusions. A thesis typically requires greater levels of research and reading, and often requires the collection of original data. The research thesis, if done well, can be an example of independent research capabilities, writing abilities, and high-level analytical skills. Those students wishing to complete the 10-semester credit thesis must pull together a thesis committee consisting of a primary advisor from the full time city and regional planning academic faculty who chairs the committee plus two additional members, one of whom also needs to be from the city and regional planning faculty, including adjuncts and affiliated faculty. Students typically take their thesis units in their second academic year, usually 2 credits in the fall, and 8 credits in the spring. Variations from this schedule must be approved by the MCRP Program Director.

An applied research paper (option paper) is a shorter (relative to the thesis) piece of work of professional quality related to the student's specialization and interest. The applied research paper should be professional quality work directly useful to those involved in the practices of planning, policy-making, government, conservation, public service provision, or development. The precise format of the applied research paper will follow from the topic or problem being addressed, and should be determined by each student in concert with the advisor. The applied research paper typically applies planning knowledge and processes to addressing a topic, issue, or problem, often for the purposes of meeting the needs of a community, stakeholder group, or other potential client group. The applied research paper requires 4 semester hours of credit, 1 to 2 credit hours in the fall of the second year and 2 to 3 credit hours in the spring. Students should not register for 4 units of Applied Research Paper in one semester, unless they receive prior approval from the MCRP Program Director, because the process of defining the problem, developing the methods of investigation, conducting the literature review, collecting the data and writing the finished product cannot be done in one semester.

Since the thesis or the applied research paper is a major piece of individual work that must be completed prior to graduation, students must begin either project at least one semester in advance of their graduating semester. The typical thesis student would take 2 semester credits of thesis in the fall and 8 semester credits in the spring semester of the second year. The typical applied research paper student would take 1 or 2 semester credits in the fall semester of the second year and the remaining 3 or 2 semester credits in the spring semester of the second year.

Thesis courses are available on a pass/fail (“S”/ “U”) basis only. Applied research papers are available on a letter graded basis only. Real progress needs to be made in order to receive a passing grade in either course in the first semester. The last 8 and 3 semester credits, respectively, of either endeavor will not be awarded a passing grade until the thesis or paper is totally completed to the satisfaction of the formal thesis or paper advisor. Those students who receive failing grades in their thesis courses will be required to re-register for the course, incurring that additional expense. Students may receive an incomplete in their applied research paper hours.

A typical schedule for a Spring graduate might be as follows:

Semester	Course #	Course Name	Semester Hours
<u>Applied Research Paper Student</u>			

Fall 2 nd Year	CP 8990	Applied Research Paper	1
Spring 2 nd Year	CP 8990	Applied Research Paper	3

OR

Thesis Student

Fall 2 nd Year	CP 7000	Thesis	2
Spring 2 nd Year	CP 7000	Thesis	8

Following are some specific guidelines for the thesis and the applied research paper.

A. Thesis

The thesis (CP 7000) is an individual research project concentrating on some subject related to city and regional planning. All theses must conform to the requirements as outlined in the Georgia Tech "Manual for Graduate Theses," published by the Office of Graduate Studies and Research. In addition, the following guidelines should be observed.

For city and regional planning students, the thesis advisor and one other committee member must be full-time members of the City and Regional Planning faculty who will be available during the entirety of the thesis work (i.e., not on sabbatical or other arrangement requiring absence from the campus over extended periods). A second member must be affiliated with the City and Regional Planning faculty, with the third member being affiliated with CRP, College, Institute, other academic institution or the professional community. For dual degree students, at least one member of the thesis committee must be a full-time member of the City and Regional Planning faculty.

The thesis is given 10 semester hours of credit, which should represent the equivalent of a minimum of three months of full-time effort. Most students will exceed this effort. Work on the thesis must be completed while the student is registered for thesis credit.

At the beginning of the thesis process, students should prepare a thesis proposal, outlining in detail the research procedures, methodology, and scope. The committee must approve this proposal before the student proceeds with the thesis work.

The student should remember that the thesis is a hypothesis-testing research process and thus must have general application within the planning profession. Thus single-focused case studies or analysis of one area or situation will normally not be appropriate for the thesis requirement.

Because the thesis is based on research, all students conducting a thesis must be trained in Responsible Conduct of Research, which explains the ethical responsibilities of researchers. More information can be found at <http://www.policylibrary.gatech.edu/research-support/responsible-conduct-research-compliance-policy>.

B. Applied Research Paper

The applied research paper (CP 8990) is an individual research project on some subject related to the student's concentration within the city and regional planning curriculum. To begin, students determine a topic or general area of interest and then select one of the City and Regional Planning faculty members as an advisor. If the student wishes, s/he may select additional persons in the College or Institute or other professionals to assist with the review of an applied research paper. However, only one city and regional planning faculty member is required and that person must be the applied research paper advisor.

- Adjunct faculty or others can serve as option paper advisors only with prior permission of the Director of the MCRP Program.
- The applied research paper advisor may differ from the student's academic advisor.

Specific requirements for each project will differ, and thus an agreement between the student and the applied research paper advisor should be developed, preferably in writing.

Following are some general requirements and guidelines that should be followed in developing this agreement.

- A. The applied research paper is given 4 semester hours of credit. This level of effort would be equivalent to five full-time weeks of work. This, of course, represents a minimum and most students would exceed this effort. Work on the applied research paper is undertaken and completed while the student is registered for CP 8990 units.

The final report should be of professional quality. The advisor must approve, in advance, the form of the final report (e.g., a professional report, publishable professional journal article, or some other format).

Any topic can be chosen that is agreeable both to the student and advisor. There are no specific requirements related to the type of study that could be undertaken, and the following examples are illustrative only:

- Case studies
- Surveys and data analysis studies
- Computer programs, documentation & report
- Analytical studies and investigations
- Analysis of local planning issues
- Development of plans, ordinances, policies

The research and final report must be an individual effort. If any work on the project is done off campus (i.e. at your workplace) as part of a group effort or not under the direct supervision of an advisor, the student must provide documentation to verify, to the satisfaction of the advisor, that submitted work was an individual effort.

As part of the requirements for graduation, and at the option of the advisor, the student may be required to present orally the final report to the faculty, students, or other interested parties.

The applied research paper is graded on a letter grade basis.

One of the major purposes of this paper is to apply the planning techniques and procedures covered in the City and Regional Planning curriculum and within the area of concentration. Thus, each paper should include a section dealing with the planning aspects and process related to the topic.

Submission of written drafts of the option paper must occur on a timely basis.

The timetable for a graduation is:

Spring Semester	Summer Semester	Fall Semester	
March 15	June 10	October 10	First draft of option paper submitted electronically to MCRP Director and the Applied Research Paper Advisor (if a student does not meet this deadline, s/he should be aware that graduation may be postponed).
April 1	July 1	November 10	Advisor returns draft to student with comments.
April 15	July 15	November 29	Second draft of option paper goes to advisor.
By Last Thursday of Semester**			Advisor approves final paper. One bound copy is submitted to the advisor. An electronic PDF version is submitted to the advisor <u>and</u> the School Academic Advisor.

**For precise dates, see the Spring OSCAR under “Last Day of Classes for non-graduating students”

An electronic PDF version of the option paper must be submitted both to the student’s faculty advisor and to the School Academic Advisor.

IX. ACADEMIC PERFORMANCE

A. Graduation Requirements

1. GPA: In order to graduate, a student must attain a minimum overall 2.7 grade point average (as computed by the Registrar).
2. Credits: 55 semester-hours, with a minimum of 30 hours of actual coursework drawn from courses with a CP prefix, plus the four hours for an option paper or ten hours for a thesis.
3. Coursework: All core courses must be passed with a "C" or better, unless waived by the School. In addition the School requires an absolute minimum of 12 semester credit hours of specialization coursework. 52 of 55 credit hours must be taken for a letter grade, with the exception of thesis hours.
4. Internship of 8 weeks, 40 hours per week or equivalent, in a planning related job (paid or unpaid). A completed internship form must be in the student’s academic file.

5. Applied research paper or thesis, satisfactorily completed.
5. Submit an Online Application for Graduation (OAG). See: <https://registrar.gatech.edu/info/online-application-graduation-oag-graduate-students>. The day after submitting your application to graduate, you should be able to see both your application and graduation status in DegreeWorks (<http://www.degreeworks.gatech.edu/>).

The deadline to submit an OAG for a spring graduation date is early January. Check OSCAR for the specific, "Last day for degree petitions for Master's candidates."

B. Academic Standing

Student progress through the School is monitored by the faculty. Unsatisfactory progress toward completion is indicated by failure to maintain a cumulative graduate GPA of 2.7 or above. The graduate GPA for the purpose of this section is the GPA (as computed by the Registrar's Office) derived from all courses taken at Tech applicable to the student's program of study. The student should be aware that incomplete grades, while not entering into the computation of the grade point average, do not indicate successful completion of the required units.

A student not showing normal progress toward the degree or whose cumulative GPA as defined above is less than 2.7 is automatically placed on warning and a "committee on progress" is convened. The committee on progress is composed of the student's advisor and one other faculty member appointed by the Chair. Its task is to assist the student in overcoming academic problems. The student is allowed one semester of warning in which to bring the GPA (as defined above) up to the 2.7 level, or at least to make substantial progress toward this goal, while making normal progress toward the degree. Typically, the committee will recommend a set of actions that must be met by the student to ensure progress. The Chair will establish an agreement with the student, indicating those actions necessary to assure progress toward a degree and improve the student's performance in their courses. Failure to meet the conditions as set by this agreement shall result in dismissal from the School. (See the Georgia Tech General Catalog for the Institute academic standing regulations.)

C. Conditional Status

Students admitted on "conditional status" must meet the obligations of regularly admitted students and may have additional conditions attached to their admission as well, e.g., the obligation to take remedial course work or to earn a specific set of grades in a particular group of courses in the first semester. Conditionally admitted students who do not satisfy admission conditions within the designated time period are subject to dismissal.

D. Incompletes

Each student should make every effort to complete coursework during the semester of registration. In highly unusual circumstances, however, students may request to take an "Incomplete" in a course. Institute policy states that instructors give "Incompletes" only in exceptional circumstances for non-academic reasons that are beyond the student's control (for example, health reasons, serious family problems, investigation of academic misconduct). If an Incomplete is assigned, the student must remove the Incomplete and the instructor must report the new grade no later than the end of the student's next semester in residence. If a change of grade is not reported by the end of the student's next semester in

residence, the Incomplete will automatically become an "F." Note that an Incomplete cannot be assigned to a course offered on a pass/fail basis. In this case the grade automatically becomes a "U" if the professor does not submit an "S" when grades are due. However, it does not affect the student's grade point average. If a student registers again for the course in the subsequent semester and passes it, the internal transcript will show both entries; however, any transcript sent outside the Institute will mask the original "U."

To change a grade that has become an "F," approval by the Instructor, the School Chair, and the Registrar's Office is required. It is the School's policy that only in exceptional cases will grade changes be approved at this point. Therefore, a student should anticipate that an incomplete removed after the Institute deadline will be assigned a grade of "F."

One final point: It is unwise to submit work necessary to remove an incomplete just prior to the Institute deadline. If the instructor feels that revisions or additions to this work are necessary, a student could miss the Institute deadline. Sufficient time for grading and refinement should be allowed.

E. Academic Drop/Readmission

Any student who is not enrolled for **two** or more consecutive semesters must apply for readmission.

Any student in Good Standing who is not enrolled for a **single** semester will be allowed to enroll without applying for readmission to the Institute. There is no distinction between the semesters of the regular academic year and the summer semester.

A student who is on Academic Warning or Probation who is not enrolled for a **single** semester will have an automatic hold placed on his or her registration, which must be cleared by the student's major school. For example, a student who is placed on academic warning or probation at the end of a Fall semester and fails to enroll by the close of Phase II registration for the following Spring semester will receive an automatic registration hold. The student's major school must clear this hold before that student can register for the Spring semester. Should the student not register for the Spring semester, then s/he will have to submit a readmission application for the next term for which enrollment is sought.

Any student, **except a part-time graduate student**, who withdraws during a semester and wishes to return the following semester must complete a readmission application and a petition to the faculty for consideration. Part-time graduate students are required to complete only a readmission application. These documents must be submitted to the registrar before the semester readmission deadline as follows:

Summer Semester	April 1
Fall Semester	July 1
Spring Semester	December 1

F. Grade Changes

Changes in grade are made only if the final course grade was in error. The professor must indicate that there were extenuating circumstances, i.e. beyond the professor's or student's control. No change of grade will be made after the end of the student's next semester in residence.

G. Maximum Number of Hours to Be Enrolled

Per Institute limits, no graduate student can register for more than 21 semester credit hours during any given semester. Requests for program overloads must be approved by the School Chair and the Institute Graduate Curriculum Committee. However, as general advice, course loads above 16 or 17 credit hours often prove overly challenging even to highly focused students.

X. GRADES AND SCHOLASTIC AVERAGE

A. Grades

1. The letter grades for completed courses used in the calculation of scholastic average are the following:
 - A Four quality points
 - B Three quality points
 - C Two quality points
 - D One quality point; course must be repeated if it is a core course
 - F No quality points

2. The following grades will be used in the cases indicated and will not be used in the calculation of scholastic average:
 - S Passing of a course taken under pass-fail or completion of a course in which no letter grade may be assigned.

 - U Failure in a course taken under pass-fail or unsatisfactory performance in a course for which no letter grade may be assigned.

 - V Assigned when the course has been audited; no credit given; implies no academic achievement on the part of the student and cannot serve as the basis for credit by examination at any future date.

3. The following grades will be used in the cases indicated:
 - I Incomplete. Assigned when a student is incomplete in some part of the course for illness or death in the immediate family or is absent from the final examination for illness or death in the immediate family. If the student's record is so poor as to preclude passing, the instructor shall assign the grade of "F" or "U." (Note: registering and repeating a course in which an "I" grade has been assigned will not remove the outstanding "I" grade.) **Institute policy forbids faculty from using the Incomplete as a temporary grade while the student improves work originally demanded by the course. Incompletes are only for students with extenuating nonacademic circumstances.**

 - W Dropped the course before the end of the fifth week. This symbol indicates that a student was permitted to withdraw without penalty. Withdrawals without penalty will not be permitted after the fifth week except in cases of hardship as determined by the registrar.

Ordinarily, students who withdraw from school and receive all grades of W will not be permitted to re-enroll the next succeeding semester.

B. Dropping and Adding Courses

Through the computer-based registration system, students may now drop a course without any permission or counseling from academic programs or advisors. All students should seek advice and counsel from their faculty advisor and from the School Academic Advisor before dropping a course. Any student who is on a conditional status will be prevented from dropping courses (with a “hold”) without the consent of their faculty advisor.

Be sure to check your schedule at registration to verify that all courses for which you are registered are ones that you do in fact intend to complete. You are responsible for dropping any unwanted classes. If you do not do so by the drop deadline, you risk receiving a grade of "F" in a course in which you were enrolled but you did not attend or complete.

Students may add a course to their schedule before the end of late registration (which is the end of the first week of classes). **Students should note, then, that it is not possible to add courses after the first week of classes.** If you are “shopping” for classes and are not sure what you will finally end up taking, you should make sure you are registered for all of the classes under consideration by the end of the first week. You can then drop the “extra” courses prior to the “Last Day to Drop Classes” deadline (about 4 to 5 weeks into the semester).

C. School Honors

Each year the School faculty makes awards for academic achievement. Both the AICP (American Institute of Certified Planners) and GPA (Georgia Planning Association) Student of the Year awards are conferred in the spring to graduating students, as well as faculty awards to students who perform well academically, show professional promise, or have provided exceptional service to the School.

XI. CERTIFICATE PROGRAMS

Certificate programs provide an opportunity to enhance your education and add a credential to your MCRP degree. Any course taken for a certificate can also be used to meet the normal requirements of the MCRP Degree Program, either as an elective or, if appropriate, as a specialization course.

The MCRP Program is associated with four certificate programs:

1. Geographic Information Systems, offered by the MS in Geographic Information and Science Program within the School of City and Regional Planning,
2. Global Development, offered jointly by the Schools of City and Regional Planning, Economics, and International Affairs,
3. Historic Preservation, offered by Georgia State University, and
4. Sustainable Energy and Environmental Management, offered by the School of Public Policy.

Contact the appropriate School or Program to request entry into the certificate programs.

A. Certificate in Geographic Information Systems at Georgia Tech

The Certificate in Geographic Information Systems is open to both MCRP students and students from other programs. The certificate is structured around three sets of courses, including a foundational course in GIS, two skills related courses, and one policy context course.

The Certificate in GIS requires four courses as follows.

A. Foundational Course (3 credit hours):

- a. CP 6521: Advanced GIS

Two skills courses (6 credit hours) drawn from a list

- b. CP 6531 Introduction to Remote Sensing
- c. CP 6541 Environmental Analysis Using GIS
- d. CP 6542 Transportation and GIS
- e. CP 6570 Socioeconomic GIS
- f. CP 8853 Special Topics: Public Health Analytics
- g. CP 8883 Special Topics: Spatial Networks
- h. CP 8883 Special Topics: Programming for GIS
- i. CP 8883 Special Topics: Climate Change Analytics

One policy context course drawn from the following list (3 credit hours):

- j. CP 6112: Introduction to Land Use
- k. CP 6213: Urban Environmental Planning and Design
- l. CP 6311: Introduction to Transportation Planning
- m. CP 6412: Local Economic Development Planning and Policy
- n. CP 6611: Principles of Real Estate Finance and Development
- o. CP 6832: Introduction to Urban Design

Your coursework for this certificate can be counted toward your MCRP degree. The certificate can be received without taking more than the 55 credits required for the MCRP degree by counting certificate courses as electives in your MCRP program of study.

Students may obtain additional information about the program from the School of City Regional Planning at <https://planning.gatech.edu/graduate-certificates>.

B. Certificate in Global Development

The Graduate Certificate in Global Development is offered by the School of Economics, Sam Nunn School, and the School of City and Regional Planning. The certificate will provide graduate-level training in principles and methods of global development through multidisciplinary courses. Courses will cover a wide variety of topics on the theory, methods, and application of global development. The goal of the 12-credit hour certificate is to increase marketability for students seeking employment opportunities in organizations dedicated to addressing economic development, urban and regional planning, environmental problems and international affairs.

Certificate Requirements

- Twelve hours of coursework in (any combination) international affairs, city and regional planning, and economics
- For students enrolled as a master's or a doctoral student, courses used in a certificate also may be used to satisfy requirements in the student's major degree program, unless otherwise designated by the academic unit offering the certificates
- All courses counting toward the certificate must be taken on a letter-grade basis, and be completed with a grade of C or higher with a minimum GPA of 2.7 for the certificate

Required Courses (6-7 Credit Hours)

- INTA 6704/ CP6704/ECON 6704: Introduction to Global Development (3)
- CP6055: Planning Studio (5); or CP6053: Urban Design Studio; or ECON/INTA 8803: Graduate Capstone in Global Development (3)

Elective Courses (4-6 Credit Hours)

Choose two from approved lists found here: <https://econ.gatech.edu/graduate/certificates>.

C. Heritage Preservation Certificate at Georgia State University

Students may also choose to cross-enroll at Georgia State University to earn a Certificate in Heritage Preservation. Specific requirements of the certificate program are described in the GSU Graduate Catalog for the College of Arts and Sciences. A summary of the certification requirements is indicated below, but you must check with GSU to confirm their requirements. This student manual does not supersede any GSU requirements.

- A. Introduction to Historic Preservation (HIST8600)
- B. Case Studies in Historic Preservation (HIST8700)
- C. Plus your choice of any two of the following Cultural Resources courses:
 - a. Public Archeology (ANTH8240)
 - b. Social History of American Architecture and Urbanism (HIST8630)
 - c. Seminar in Urban History (HIST8840)
 - d. Seminar in Cultural Geography of the U.S. (GEOG8025)
 - e. Folklore (FOLK8200)
- D. Plus two courses in your preservation specialty
- E. Successful completion of a written general examination

Your coursework for this certificate can be counted toward your MCRP degree. The certificate can be received without taking more than the 55 credits required for the MCRP degree by counting certificate courses as electives in your MCRP program of study.

Students may obtain additional information about the program in Heritage Preservation by contacting the Heritage Preservation Program at Georgia State University, University Plaza, Atlanta, Georgia 30303; 404-413-6365. For more information, visit: <https://cas.gsu.edu/program/heritage-preservation-graduate-certificate/>.

D. Certificate of Sustainable Energy and Environmental Management (CSEEM)

The certificate program takes an innovative and integrative approach to sustainability that prioritizes the management of Earth's systems and resources through an understanding of best practices. The Sustainable Energy and Environmental Management curriculum is a multi-disciplinary program with courses taught in schools across the Georgia Tech campus. These include Public Policy, Business, Industrial and Systems Engineering, City and Regional Planning, Civil and Environmental Engineering, and Economics among others. To earn the CSEEM certificate, students are required to complete 12 credit hours consisting of 3 key elements:

A. Two Required Courses

PUBP 6312	Economics of Environmental Policy
PUBP 8803	Sustainable Energy and Environmental Management

One Quantitative Methods Elective

The longer list of options (see <https://cepl.gatech.edu/degrees/courses>) includes two planning courses:

CP 6514	Introduction to Geographic Information Systems
CP 6541	Environmental Analysis using GIS

One SEEM Elective OR One Policy & Management Elective

The longer list of options (see <https://cepl.gatech.edu/degrees/courses>) includes the following planning courses:

CP 6190	Introduction to Climate Change Planning
CP 6213	Urban Environmental Planning and Design
CP 6214	Environmental Planning and Impact Assessment
CP 6217	Climate Change and the City
CP 6223	Policy Tools for Environmental Management
CP 6233	Sustainable Urban Development

This certificate serves as an effective complement to the specialization in Environment and Health.

XII. DUAL DEGREE AND EXCHANGE PROGRAMS

The School of City and Regional Planning maintains dual degree programs involving the MCRP degree with other academic units at Georgia Tech and other universities as follows:

- A. Architecture, with a focus on urban design, with the School of Architecture,
- B. Transportation with the School of Civil and Environmental Engineering,

- C. Public policy with the School of Public Policy,
- D. Law with the College of Law at Georgia State University, and
- E. Geographic Information Science and Technology, also in the School of City and Regional Planning.
- F. Tongji University - Georgia Tech Exchange Program in Shanghai

Students can structure their program of study so that required courses taken in one program can serve as elective credit in the other, thus allowing students to receive the two degrees in less time than the two would take to complete, if enrolled separately.

In each dual degree program, students must be admitted separately to both graduate programs. Admission to one graduate program does not guarantee admission to another. Thus students who intend to enroll in a dual program should be admitted to the second program and develop a program of study for the dual degree that is approved by both programs either before they begin the coursework or immediately after admission into the first program (except in the case of Law, as specified below). Although the Georgia Tech Registrar only recognizes one major, the non-major program must approve the student's pursuit of the dual degree in writing. This is the only guarantee of admission to a dual program.

A. *Dual Degree in Urban Design (GT School of Architecture)*

Program Advisors: Mike Dobbins, City and Regional Planning Advisor
 Perry Yang, Architecture or City and Regional Planning Advisor
 Ellen Dunham-Jones, Architecture Advisor

1. Objectives

The dual Master of Architecture and Master of City and Regional Planning degree seeks to educate those who wish to engage directly in the process of city building. The program is intended to meet the needs of planning and architectural firms, agencies, consultants and institutions, for graduates who can deal competently with the design complexities of urban areas. The curriculum is comprised of the core requirements for each of the two professional programs and, in addition, a set of dual requirements that focus upon urban design as a common ground linking the theory and practice of the two disciplines. The dual curriculum builds upon five major bodies of material:

- Urban history and design theory as a way of understanding the formal and architectural order of the city
- Economics and development methods as a basis for formulating development projects
- Process and methods as a means of understanding professional practice and of designing policies and strategies that can be implemented in a private market regulated by public bodies
- The performance of design interventions in achieving specified economic, social, and environmental objectives

- Design studios as a basis for exploring architectural, urban design and development issues utilizing theory, method and professional practice paradigms.

2. Admission

Students wishing to enroll in the dual degree program must apply separately and be admitted independently to each program. For prospective students not yet enrolled in either program, an application should be submitted to each program separately. Students currently pursuing either the MArch or the MCRP and seeking admission to the dual degree program should apply directly to the other program. Applications will be reviewed during the regular admissions schedule in place in the relevant program.

It is strongly recommended that students apply to the dual degree program before beginning studies in either program, or if not, then no later than the end of their first year of study in the first program.

Both degrees must be awarded simultaneously. That is, students enrolled in the dual degree program may not receive either degree until they have met the requirements of both degrees. More information is available from either the Architecture or City and Regional Planning office.

3. Course Requirements

The dual Master of Architecture and Master of City and Regional Planning degree is designed as a **7 semester** program of study, with a minimum combined requirement of at least **99** credit hours. The course credit required may be greater if the Architecture faculty determines that the student does not have full advanced standing upon admission.

Students are expected to meet all requirements of each degree, including all core, specialization and studio requirements, with four modifications.

1. Up to 8 credit hours of Architecture courses may be used as electives toward the MCRP degree.
2. Up to 8 credit hours of CRP courses can be used as electives toward the March degree.
3. Students must complete a “concentration” area. While most students will elect to follow the urban design concentration, other concentration areas are possible, subject to the approval of both schools.

For the concentration in urban design, the following courses are required **in addition** to the core courses required for each degree program:

CP 6832: Introduction to Urban Design	OR	
CP 6836: Urban Ecological Design		3 Credits
CP 6834: Urban Design Policy and Implementation		3 Credits
ARCH 6071 or 6072: Design and Research Studio I (Urban Design)		6 Credits
Joint M.ARCH and MCRP Masters Thesis in Urban Design	OR	
Approved architecture master’s studio and the CP option paper		10 Credits
Elective course from approved list (below)		3 Credits

Total: 25 Required Credit Hours in Urban Design
(in addition to core course requirements in both degree programs)

In the M.ARCH / MCRP dual degree program, the required ARCH 6071 or 6072 studio section is jointly taught with COA 6011: Urban Design Laboratory in conjunction with the Master of Science in Urban Design Program. This course satisfies the Design Research studio requirement in the M.ARCH Program and the studio requirement.

A single required elective for the urban design concentration must be chosen from the following list of approved courses. Note that courses completed for the dual degree concentration may count toward the elective or specialization course requirements for the MCRP degree:

ARCH 6151: Urban Design Theory
ARCH 6153: History and Theory of the Modern City
CP 6836: Urban Ecological Design
CP 6213: Urban Environmental Planning and Design
CP 6850: Public Health and the Built Environment
CP 6611: Real Estate Finance and Development
CP 8823: Stormwater Planning and Design
COA 6120: Retrofitting Suburbia
CP 6311 Introduction to Transportation Planning
CP 6850: Public Health and the Urban Environment
COA 8645: Analytical Models in Urban Design
CP 8823: Site Planning and Urban Simulation

4. As noted above, students enrolled in the urban design concentration must complete one of the following two capstone alternatives:
 - a. a master's thesis supervised by a committee comprised of one faculty member from each program and involving at least 5 credit hours of CP7000: Master's Thesis and at least 5 credit hours of ARCH7000: Master's Thesis (10 credit hours total); or
 - b. the combination of 6 credit hours of an approved Architecture Masters Project Studio and at least 4 credit hours of CP8990: Applied Research ("Option") Paper.

Both degrees are awarded simultaneously. Students enrolled in the dual degree program may not receive either degree until they have met the requirements of both degrees.

B. Dual Degree in Urban Transportation Planning (GT School of Civil and Environmental Engineering)

Program Advisors: Catherine Ross, City and Regional Planning
Gulsah Akar, City and Regional Planning
Randy Guensler, Civil and Environmental Engineering

1. Objectives

The dual master's degree program in City and Regional Planning and Civil Engineering [Transportation Systems Engineering (TSE)] prepares students for careers influencing public policy and private investment in transportation systems. Such systems, including urban, suburban, exurban and rural highways,

railways, public transit, pedestrian and bicycle facilities, rights-of-way, ports, terminals, parking and intermodal linkages involve design and policy coordination that benefits from both engineering and planning. Graduates from this program become instrumental in bringing perspectives from one profession into the lexicon and tools of the other profession.

2. Admission

Students wishing to enroll in the dual degree program must apply separately and be admitted independently to each program. For prospective students not yet enrolled in either program, an application should be submitted to each program separately. Students currently pursuing either the MS/MSCE or the MCRP and seeking admission to the dual degree program should apply directly to the other program. Applications will be reviewed during the regular admissions schedule in place in the relevant program.

It is strongly recommended that students apply to the dual degree program before beginning studies in either program, or if not, than no later than the end of their first semester of study in the first program.

3. Course Requirements

Students earning both the MCRP degree and a M.S. degree with a major in Civil Engineering or M.S. in Civil Engineering (Transportation Systems Engineering) are expected to meet all requirements of each degree, including all core, specialization and studio requirements, with five conditions:

1. Students may count up to twelve (12) credit hours of Civil and Environmental Engineering courses as electives toward the MCRP degree;
2. Students may count up to six (6) credit hours of planning courses as electives toward the MS/MSCE degree;
3. Students must complete the standard twelve (12) credit hour transportation specialization under the MCRP degree;
4. Students must complete the standard transportation systems engineering specialization requirements under the MS/MSCE.
5. Students enrolled in the dual degree program must complete research in Civil and Environmental Engineering and a thesis in City Planning that is supervised by a committee comprised by faculty of both programs. This involves taking at least six (6) credit hours of CP7000 (Master's Thesis), and at least six (6) credit hours of CEE8900 (Special Problems).

All students must complete a minimum combined requirement of at least sixty-seven (67) credit hours. Both degrees are awarded simultaneously.

As the MCRP degree is approved for differential tuition and the MSCE currently is not, dual degree students will pay MCRP differential tuition for one half of their enrolled semesters, and will pay regular graduate tuition rates for one half of their enrolled semesters.

C. Dual Degree in Public Policy (GT School of Public Policy)

Program Advisors: Michael Elliott, City and Regional Planning
 Brian An, Public Policy

1. Objectives

The dual master's degrees program in City and Regional Planning and Public Policy prepares students for urban policy analysis work at the national, state, and local levels. Graduates would work in policy, planning and/or political settings building upon the complementary perspectives and skills of the two professions. The dual degree also provides the opportunity to step toward Ph.D. programs in either City and Regional Planning or Public Policy with an emphasis on Urban, Environmental, or Development Policy.

2. Admission

Students wishing to enroll in the dual degree program must apply separately and be admitted independently to each program—MCRP and MSPUBP. For prospective students not yet enrolled in either the MCRP or MSPUBP program, an application should be submitted to each program separately.

Students currently enrolled in and pursuing either the MCRP or the MSPUBP and seeking admission to the dual MCRP-MSPUBP degree program should apply directly to the other program. Applications will be reviewed during the regular admissions process of the respective program office.

While it is strongly recommended that students apply to the dual degree program before beginning studies in either program, or if not, then no later than the end of their second semester of study in the first program.

3. Course Requirements

All students must complete a minimum combined requirement of **75 credit hours** for the dual degree program. Students earning both the MCRP and MSPUBP degrees must meet requirements of each degree, including all core, specialization (MCRP), and studio requirements (MCRP), with five modifications:

1. up to 12 credit hours of Public Policy courses may be used as electives toward the MCRP degree;
2. up to 14 credit hours of City Planning courses may be used as electives toward the MSPUBP degree;
3. students must complete either CP6025: Advanced Planning Methods or PUBP 6114: Applied Policy Methods as a core course, but may not receive credit for both;
4. students must complete either CP6031: Economic Analysis in Planning, or PUBP 6116: Microeconomics in Policy Analysis, but may not receive credit for both; and
5. students must elect at least one specialization of which the two programs have overlapping/complementary faculty expertise with the approval of faculty advisor. In the MSPP program, the concentration involves at least 12 credit hrs. In the MCRP program the specialization involves at least 12 credit hours. [Note: either the Public Policy concentration or the City and Regional Planning specialization must be in the area of Economic Development; Urban and Regional Policy; or Environmental Policy, Planning and Management]
6. students shall complete a research paper in each degree program. For the MCRP degree, the student will complete: **CP 8990** Applied Research Paper (4 hours minimum). For the MSPP degree, the student will complete: **PUPB 6801** Research Paper (4 hours minimum). It will be the student's responsibility to apprise the faculty advisers of these papers of the scope of work of both papers so that the advisers may make appropriate determinations as to the adequacy of the scope of work of the project they advise.

Other requirements:

Students must complete both degree programs simultaneously so that the degrees may be awarded simultaneously. That is, students enrolled in the dual degree program will not receive either the MCRP or the MSPUBP degree until they have met the requirements of both degree programs. Should a dual degree student choose to withdraw from one of the two degree programs, the student would have the option of completing the other degree following the normal requirements of that single degree program.

As the MCRP degree is approved for differential tuition and the MSPUBP currently is not, dual degree students will pay MCRP differential tuition for one half of their enrolled semesters, and will pay regular graduate tuition rates for one half of their enrolled semesters.

D. Dual Degree in Law (Georgia State University College of Law)

Program Advisors: Michael Elliott, City and Regional Planning
 Julian Juergensmeyer, College of Law, GSU

1. Objectives

The objectives of this cooperative dual degree program are: 1) to support the interests of students who wish to pursue study in the fields of both law and city and regional planning, 2) to provide a focal point for exploring the connections between the two disciplines through the research and instruction between the two programs; and 3) to provide an educational opportunity that reflects the fact that land management law and city and regional planning have become increasingly integrated and interdisciplinary in nature. Therefore, this program promotes a broader educational experience for today's land use law or planning professionals, by providing expertise in both disciplines.

The cooperative J.D./MCRP program will permit students to use credit hours earned in one program to satisfy some of the elective course requirements of the other program, thus permitting them to earn both degrees in a shorter time than would be possible pursuing both degrees separately.

2. Admissions and Timing of Entry into the Dual Degree Program

Candidates for the dual degree program will need to meet the separate admissions requirements of the College of Law and the School of City and Regional Planning. Admission into one college will create no presumption favoring admission to the other. To be admitted to the dual degree program, an applicant must be separately admitted to both the J.D. and the MCRP programs and then must request to proceed in the dual degree program.

Students interested in the pursuing the dual degree program may apply for admission into the College of Law and the School of City and Regional Planning simultaneously, but they are not required to do so. For students who are admitted first into the J.D. program, they should seek admission into the MCRP program as soon as possible and must be admitted into that program no later than the beginning of the fall semester of their third year of full-time law study. For students who are admitted first into the MCRP program, they should seek admission into the J.D. program as soon as possible and must be admitted into that program no later than the beginning of the fall semester of their second year of full-time study as an MCRP student.

The College of Law will not permit a student to enroll in the dual degree program after the student has completed 31 hours of course work in the MCRP program. Similarly, the City and Regional Planning will not permit a student to enroll in the dual degree program after the student has completed 65 hours of course work in the J.D. program.

Students who have been admitted to both programs and intend to pursue the dual degree must, at their first opportunity, complete the first 31 semester hours of required courses in the J.D. program. After the completion of these 31 hours of law courses, course enrollment in either program or both concurrently is permitted.

3. Program Requirements

The College of Law requires all J.D. candidates to earn 90 credits hours, 43 of which are required courses and 47 of which are elective courses. For students enrolled in the J.D./MCRP program, the College of Law will accept as course credit 12 semester hours earned from approved courses in the MCRP program. Students must earn a grade of B or better to receive law credit for their MCRP course work.

All MCRP candidates are required to earn 55 credit hours, 28 of which are core course requirements, 12 of which are specialization requirements, and 15 of which are electives. For students enrolled in the J.D./MCRP program, the School of City and Regional Planning will accept as course credit a maximum of 21 semester hours from approved law courses in the J.D. program. Students may use 6 of these law hours toward satisfying their MCRP specialization requirement, and apply the balance toward their electives. To complete the dual degree, students must have a minimum of 18 semester hours of law courses. Students must earn a grade of 80 (which is the equivalent of a B) or better to receive MCRP credit for their law course work. If a student receives a grade of less than 80 for a *required* law course that will be used toward his/her MCRP degree, the student may petition the School Chair for this requirement to be waived.

Law courses to count toward MCRP degree: Students can apply a minimum of 18 and a maximum of 21 hours of law courses toward their MCRP degree from the following list (other courses may be used, with permission of the School Chair):

- Law 5050 Property
- Law 6000 Constitutional Law (Land Use)
- Law 7010 Administrative Law
- Law 7060 Alternative Dispute Resolution
- Law 7061 Advanced Alternative Dispute Resolution
- Law 7117 Constitutional Law II: Individual Liberties
- Law 7200 Environmental Law (Environment and Health Planning)
- Law 7201 International Environmental Law (Environment and Health Planning)
- Law 7203 Natural Resources (Environment and Health Planning)
- Law 7204 Urban Issues in Environmental Law Seminar (Environmental and Health Planning)
- Law 7206 Comparative Environmental Law (Environmental and Health Planning)
- Law 7207 Environmental Health Law & Policy (Environmental and Health Planning)
- Law 7238 Hazardous Waste (Environment and Health Planning)
- Law 7242 Growth Management Law Seminar
- Law 7244 Public Health Law (Environment and Health Planning)
- Law 7251 Law and Social Welfare (Housing and Community Development)
- Law 7320 Land Use Law (Land Use)

Law 7325 Land Use Drafting Seminar (Land Use)
Law 7375 Legislation
Law 7385 State and Local Government Law
Law 7386 Advanced Local Government Law
Law 7397 International Perspectives on Urban Law & Policy
Law 7433 Race, Ethnicity and the Law
Law 7435 Real Estate Transactions (Housing and Community Development)
Law 7437 Advanced Real Estate Transactions (Housing and Community Development)
Law 7500 Water Rights (Environmental Planning)
Law 7614 Urban Economic and Environmental Sustainability (Environmental and Health Planning)
Law 7654 Ecosystem Management Law (Environmental and Health Planning)

The MCRP program requires students to earn 12 credit hours toward a planning specialization. Of particular interest to law students are the specializations noted above in parenthesis next to the qualifying law courses.

CRP courses that count towards the J.D. degree: Students can apply 12 hours of MCRP coursework toward their J.D. degree from the following City and Regional Planning courses:

CP 6031 Economic Analysis in Planning
CP 6112 Introduction to Land Use Planning
CP 6214 Water Resources Planning
CP 6223 Policy Tools for Environmental Management
CP 6311 Introduction to Transportation Planning
CP 6630 Government and Housing Markets
CP 6760 Negotiation, Facilitation, and Conflict Management
CP 8823 Special Topics-Environmental Planning: Impact Assessment
CP 8823 Special Topics-Environmental Planning: Stormwater Planning

Neither the J.D. nor the MCRP degree will be awarded until completion of the requirements of both degree programs.

4. Program Coordination and Advising

Students enrolled in the dual degree program will have a faculty advisor at each institution to assist them in advising, scheduling, and curriculum decisions. These faculty advisors will work closely with the student to ensure that s/he is making appropriate progress toward the completion of the dual degree requirements.

Additional information about this dual degree program is available from the MCRP Program Director or the School Academic Advisor.

E. Dual Degree in Geographic Information Science and Technology (GT School of City and Regional Planning)

Program Advisors: Michael Elliott, City & Regional Planning
William Drummond, City & Regional Planning

1. Objectives

Students in the MCRP/MS-GIST internal dual degree program earn two complementary sets of strong educational credentials, and they graduate in only two years plus one semester rather than the three years required by the two separate degrees. Graduates of the program are prepared for employment in professions related to both geospatial technologies and city planning. The program's graduates work for a wide-variety of employers including private sector consulting companies, non-profit organizations, and government agencies at every level of government. MCRP/MS-GIST graduates are also well-prepared to pursue Ph.D. work in city and regional planning or geographic information science.

2. Admission

Students wishing to enroll in the dual degree program must apply separately and be admitted independently to each program—MCRP and MSGIST. For prospective students not yet enrolled in either the MCRP or MSGIST program, an application should be submitted to each program separately.

Students currently enrolled in and pursuing either the MCRP or the MSGIST and seeking admission to the dual MCRP- MSGIST degree program should apply directly to the other program. Applications will be reviewed during the regular admissions process of the respective program office.

While it is strongly recommended that students apply to the dual degree program before beginning studies in either program, or if not, then no later than the end of their second semester of study in the first program.

3. Requirements

Students in the MCRP/MS-GIST degree program will typically complete the program in two years and one semester. This is achieved by counting three 3-credit GIS classes as both (1) required courses in the MS-GIST; and, (2) electives in the MCRP. In addition the CP 6024 course (which is required for both degrees) provides four additional credits that are counted toward both degrees. The program requires a total of 76 credit hours rather than the 89 credit hours required for separate completion of the two degrees. Other than counting 13 credits toward both degrees, students must meet all other program requirements for each separate degree, so graduates receive the full curriculum for both degrees.

Students' first year will consist of normal coursework for either the MCRP or MS-GIST degree. During students' second year they will take the initial two semesters of coursework from the alternate program. In the fall semester of the third year students will take the final set of courses for the MCRP degree. In addition, all students will serve a normal summer MCRP internship after taking the initial year of MCRP courses, and in the summer following two semesters of MS-GIST coursework students will take two GIS classes in the summer session.

To download a sample program of study, go to <https://planning.gatech.edu/internal-dual-degree-mcrp-ms-gist>.

F. Tongji University - Georgia Tech Exchange Program in Shanghai

Program Advisor: Perry Yang, Architecture and City and Regional Planning

Tongji University's College of Architecture and Urban Planning (CAUP) is ranked as one of the top schools of architecture and planning education in China. The Tongji University - Georgia Tech Exchange Program prepares M.Arch and MCRP students for global practice by enabling them to earn an additional master's degree upon completing two semesters at the host institution. Georgia Tech's MCRP students earn a Master of Urban and Rural Planning (MURP) degree from Tongji University. Students participating in this program pay in-state (University System of Georgia) tuition rates during the year of the exchange and can receive substantial financial support from Tongji University. For further information, go to <https://planning.gatech.edu/double-degree>.

XIII. INTERNSHIPS

All students are required to have planning-related work experience prior to graduation. Internships are designed to give the student practical experience through on-the-job training. The internship requirement can be satisfied through employment with a single agency or firm for the equivalent of at least eight full-time weeks (320 hours). Internships may be paid or unpaid. The Academic Advisor keeps a comprehensive list of internship employers. However, it is the student's responsibility to arrange their internship.

Students must have their placement into an internship approved by the MCRP Program Director before their employment begins. Obtain the internship form from the Academic Advisor, fill it out, and have it signed by the MCRP Program Director, prior to beginning their employment. When a student petitions for graduation, the internship requirement will be considered fulfilled only if this form is signed and in the student's file.

Students with prior planning-related work experience may apply for a waiver of the internship requirement. Approval of the MCRP Program Director is required.

XIV. GRADUATE ASSISTANTSHIPS

All graduate assistantships are considered pay for work, not fellowships. Thus, graduate assistants are obligated to work during the same periods as all University employees. The semester is 16 ½ weeks long, and the number of hours required of a 37.5-time assistantship is 15 per week. This results in a work requirement of 247.5 hours per semester (15 hours/week x 16.5 weeks). The student and faculty member (or Co-op employer) arrange the work schedule at the beginning of the semester, according to the expected workflow. A student's funding support may be discontinued (even mid-semester) if the student fails to perform his/her assigned duties.

In City and Regional Planning, we currently have three different types of funding opportunities for students to receive assistantships. All three types of assistantships result in the same financial benefit for the student: a stipend and tuition remission (student responsible only for fees and the student qualifies for in-state tuition, even if not a Georgia resident). In exchange, the student must work the number of hours per week based on the percentage time appointment. For example, for a 1/3 (.375)-time appointment, the student receives a monthly stipend and tuition remission to include all of the tuition cost except \$25 and mandatory fees. The student agrees to work for the supervisor for 15 hours per week for the full 16 ½ weeks of the semester.

A. Types of Graduate Assistantships

Four different types of funding opportunities and typical work assignments are described below.

- A. School-funded Graduate Teaching Assistantships (called “School GTAs”). These resources are made available to the School through the College of Design to be used to support faculty research, teaching activities of the School, and other academic purposes. Oftentimes, the School Chair will use these funds to recruit high quality master’s students to our School. In addition, these funds may be used support a very limited number of continuing students to serve as Graduate Teaching Assistants (GTAs) for specific core courses. One of the members of the faculty of the School serves as the student’s supervisor. This assignment is made at the beginning of the academic year.

Faculty-funded Graduate Research Assistantships (called “Research GRAs”). On those occasions when faculty members receive funding to conduct specific research projects, a faculty member may offer funding to incoming or continuing students to assist in that research. The student can expect to work closely with a particular faculty member on a specific project activity during their research GRA. Students may also receive funding from faculty outside City and Regional Planning, through Architecture, Civil Engineering, Facilities, etc. The student reports to the specific faculty member (or his/her designee) as his/her supervisor.

GRA Co-operative Student Assistantship (“GRA Co-ops”). In this co-operative arrangement between an employer and Georgia Tech’s School of City and Regional Planning, a student works for an employer outside Georgia Tech on projects in the Atlanta metropolitan area, but the student is funded through Tech and receives the same stipend and tuition benefits as other funded students. The employer designates the student’s supervisor. Some of the types of employers that have participated in this very popular Co-op program are: real estate and development firms, local governments, urban design firms, transportation planning firms, economic development organizations, non-profit community development organizations, non-profit environmental/open space organizations, and many others. Co-op opportunities become available throughout the year and information about these positions is available from the Academic Advisor, not the Institute’s Co-op office. Many times, if the student performs well in a Co-op assignment, the employer may choose to continue the employment with the student throughout their education and, in some cases, after graduation in a permanent position.

GRA for another hiring unit at Georgia Tech. Other units at Georgia Tech hire City and Regional Planning students. The hiring paperwork is done by the hiring unit; however, the College of Design should be notified in case the appointment is appropriate for tuition waiver. There are two research centers directed by City and Regional Planning faculty – the Center for Geographic Information Systems and the Center for Quality Growth and Regional Development. Both centers hire typically CRP students. Additionally, the Center for Economic Development Services in the Economic Development Institute, the Georgia Tech Research Institute, Facilities Department, Center for Assistive Technology and Environmental Access, etc., have hired CRP students in the past. Like Co-op opportunities, these become available throughout the academic year.

Typically, students are funded at the .375-time level. The maximum level of graduate assistantship provided to a MCRP student (regardless of funding source or assistantship type) is ½-time.

B. Performance Criteria for Graduate Assistants

In determining whether to recommend continued assistance, the faculty supervisor or co-op employer will evaluate performance using the following criteria:

- Promptness and competence of task completion
- Help volunteered when no specific task was assigned
- General initiative
- Regular contact with the faculty supervisor
- Quality of job performance
- Fulfillment of contractual obligations (i.e., 15 hours of work a week).

These evaluations are conducted each semester and are used in making subsequent offers of assistantships.

C. Minimum Course Load

All assistantships are automatically terminated if a student's enrollment falls below twelve (letter grade or pass/fail) semester credit hours.

Students receiving waivers of out-of-state tuition, and those supported by fellowships or armed forces stipends are required to take a minimum of 12 academic credits as well. Students on visas must also meet the 12 credit minimum requirement.

Because the course add period ends well before the course drop period, GRAs and GTAs must plan their load very carefully. All graduate assistants must be registered for 12 hours total each semester they are enrolled. Under-enrolled students with GRA appointments will be flagged immediately following the close of registration, and if unresolved, the student will be billed for the difference between the GRA rate and the full tuition based on his/her residency.

D. International Students Tax Withholding Status

All non-U.S. citizens hired by Georgia Tech must complete an Alien Information Form. Completion of this form will provide information necessary to determine the employee's tax withholding status. Contact the Georgia Tech Bursar's Office or International Office for more detailed information and for the form itself.

XV. OTHER SOURCES OF FINANCIAL AID

Financial aid is available to students at Georgia Tech through tuition waivers, scholarships, assistantships, work study, loans, etc. Detailed information concerning scholarships, loans, grants, and the deadlines for each, may be obtained by contacting the Financial Aid Office at 404-894-4160.

There are a number of awards and scholarships available for which Georgia Tech City and Regional Planning students are eligible. Among them are: Thera Richter Memorial Fellowship, the William F. Kennedy, Jr. GRA Fellowship, Frederick K. Bell Memorial Fellowship, and the Glatting-Jackson Fellowships (each internal to SCaRP), as well as the American Planning Association Judith McManus Price Scholarship (for women and minority students who are US citizens and can demonstrate financial need), the Urban

Land Institute Fellowship, and other external scholarships. If you are interested in any of these awards, you should contact the School Academic Advisor or examine the bulletin board in the hallway outside the City and Regional Planning offices.

There is a more complete listing of scholarships and fellowships mostly from outside sources available to students at <http://gradadmiss.gatech.edu/paying-for-grad-school>.

A. Academic Common Market

While the Academic Common Market is not technically a waiver program, it serves the same purpose. If your state of residence is one of 15 southern states (from Maryland to Texas) you may qualify. To be placed on the program you must present or send a letter from the Common Market Coordinator for the higher education board for your home state to the Georgia Tech Enrollment Services Division (<http://www.admiss.gatech.edu/acm/>). This letter must indicate that you have personally been approved for the program, well in advance of your first term. The Graduate Office will coordinate your eligibility for in-state fees with the Bursar's Office.

If your home state has not already approved the MCRP Program at Georgia Tech you can appeal to the common market coordinator in that state to add it, based on the lack of availability of a program in the particular specialization you wish to pursue. For more information on this program, visit the website for Southern Region Education Board (www.sreb.org/academic-common-market).

B. Graduate Student Loans

Students may be eligible to receive student loans from federal or private financial sources. U.S. citizens and permanent residents may be eligible to receive federal student loans that are subsidized. International students may be eligible to receive privately-sponsored student loans. For detailed information about student loans, eligibility, and application processes, please see the website for the Office of Student Financial Planning and Services at: <http://www.finaid.gatech.edu>.

XVI. COURSE EVALUATIONS BY STUDENTS

Georgia Tech has made its standard course evaluation forms available on-line through a computer-based system. It is now the responsibility of students to complete course evaluations on-line. **All students in the School of City and Regional Planning must complete a course evaluation for all courses that they take at Tech.** This should be done during the time period announced for each semester.

Information from these evaluations is used in important ways. For example, the evaluations may inform an instructor about course elements where students feel the instructor is doing particularly well or poorly. The information may also provide insights into ways to improve a course. Evaluations can also be used as one element in assessing a faculty member's overall teaching performance. Therefore, completing these forms are important to students, faculty, and the School Chair.

These forms, however, do not replace the best form of evaluation – a safe, open, and interactive dialogue between students and instructors on a one-on-one basis. There is no substitute for this type of dialogue between teachers and students. Students are encouraged to share their ideas and comments to faculty

members, but students should also know that they have an opportunity to provide comments anonymously through the course evaluation process.

XVII. STUDENT REPRESENTATIVES AT FACULTY MEETINGS

Each class of MCRP students will select one representative to attend regular faculty meetings. Student representatives are entitled to participate fully in discussions. Occasionally, it will be necessary for the faculty to go into executive session to discuss personnel or student academic issues, in which case the student representatives will be required to leave the meeting.

XVIII. STUDENT APPEALS PROCEDURE

If a student feels that s/he has been dealt with inappropriately or unfairly by the School or a specific faculty member on an academic matter, the student can elect to grieve that action. Students are referred to the grievance process outlined in the **Georgia Tech General Catalog** (see <https://catalog.gatech.edu/rules/> and <http://www.catalog.gatech.edu/rules/19/>).

XIX. STUDENT ACCESS TO PERSONNEL FILES

Students do not have direct access to personnel, student, and other files. A student may request to see his or her own file, except for any recommendation letters that the student waived the right to see. The request to see one's file should be made to the School Chair.

XX. THE LIBRARY AT GEORGIA TECH

The Georgia Tech library (officially the Georgia Tech Library and Information Center) contains cataloged collections total over 3,600,000 items, including 1,200,000 government documents, 190,000 maps, and 1,500,000 microforms. City and Regional Planning students are advised to become familiar with the materials and services provided by both libraries, as described below.

The key to library resources is GTEL, the Georgia Tech Electronic Library (<https://library.gatech.edu/>). GTEL provides access to GTEC, the Library's online catalog, and other databases, such as PAIS (Public Affairs Information Service), which are useful for planning research. GTEL is also a gateway to Internet resources. GTEL also provides online access to over 150 databases, such as PAIS, the monthly catalog of U.S. Government Publications, and Dissertation Abstracts. Full-text articles are available on some databases, such as ABI Inform and Periodical Abstracts.

The Georgia Tech Library and Information Center, though primarily a scientific-technical library, does include substantial holdings in urban planning and related fields, such as public policy. The main library is open 24-hours except for holidays.

1. Library Store

The Library Store is a student, faculty member or visitor's first stop on their research journey and the portal to everything the Georgia Tech Library has to offer. Whether you need equipment, to learn your way around, to check out course reserves, or simply to ask a general question, this is where you start.

Additionally, you'll notice that in lieu of a large desk, library staff rove throughout the building. This redesigned service model allows staff to more proactively address the research and resource needs of library users regardless of their location in the building. Services offered at the Library Store request audio visual equipment, consult with subject experts, use course reserves, and pick up library holds.

2. Circulation

The main library lends materials electronically. To borrow materials from the library students must log into their library accounts and request times through the library catalog and/or ILLiad. All available circulating materials requested through the library catalog and/or ILLiad are available for pickup at the Library Services Desk.. Faculty, staff and students as well as qualified outside users may borrow materials. Students must present a current ID in order to pick up materials. Books may be borrowed for 120 days. They may be renewed if not needed by another borrower (recalled). All items are subject to recall. The borrower is guaranteed 21 total days with items. Recalled items should be returned to the Library Services Desk on or before the "New Due Date." The fine for overdue books after a book is recalled is \$2.50 per day per book. A user who loses or damages a book is responsible for replacement costs plus a processing fee. A student owing fines to the Library must clear all obligations before being allowed to register or to graduate. For complete circulation policies, please visit <http://library.gatech.edu/checkout-renew-return>

3. Research Services

Research Services provides customized fee-based research services to individuals, business, and industry, government, and Georgia Tech alumni. The library's online scientific database search service is timely, cost-effective, and confidential. For more information, contact Bette Finn, research services at 404-894-1790. Copies of articles, conference papers, and other material in the Georgia Tech Library's collections are available through Interlibrary Loan. Books are available for loan to other libraries only. Contact the Information Delivery Department at 404-367-0928 for information on prices, ordering, and delivery options.

4. Subject Experts

The subject experts can offer advice on ways to research topics and assistance with verification of bibliographic citations. These librarians also provide library orientations; general & subject specific library classes in your subject area; and assistance in developing research assignments. See: <https://www.library.gatech.edu/experts>. The City and Regional Planning subject expert is Jay Forrest.

5. Technical Resources

This department houses the Library's extensive collection of microforms, including research reports on microfiche issued by the National Technical Information Service. Numerous NTIS reports have application to urban planning, transportation, and related fields. The Library's collections of patents and standards are also housed in Technical Resources.

6. GIS Services

The Library has a vast collection of Census data, as well as other geographic data. The Library's Geographic Information Analyst will produce maps, charts, and /or databases for students on demand. An initial consultation is necessary to discuss the desired output, as well as deadlines and fees. See <https://finding-aids.library.gatech.edu/repositories/2/resources/153>.

7. Copying

Photocopying services, including microfilm and microfiche duplication, are offered in the Library Store, Grove Level. Black & White: \$.08/copy, Color: \$.49/copy. Payment is made with BuzzCard. Large format and map scanning is available in Multimedia Studio 4th floor. B&W and color printing is available throughout the Library. All printers use your BuzzCard. All copying is subject to the provisions of copyright law.

8. Lockers, Carrels, and Rooms

Short term lockers are located on the 2nd and 3rd floors, with a four hour check out period. These lockers are self-service, with students able to set their own passcodes. Long term lockers are located on the 4th and 6th floors. These lockers have a semester long checkout period. You may request a locker online at <http://library.gatech.edu/lockers#form>.

Georgia Tech Graduate Students have their own, BuzzCard-accessible space in the Library. Located on the sixth floor, the Graduate Student Community (GSC) is available for quiet study whenever the Library is open. Designed as a quiet place for individual study, the GSC provides individual study carrels along with comfortable seating. As such, events or large group meetings are not permitted in the GSC. For those who need to work in small groups, the GSC provides six individual breakout rooms. Breakout rooms are available for graduate students via instant reservation, and include wall monitors that can be used with your own device. The breakout rooms are available for academic or scholarly purposes only.

The space is BYOD (Bring Your Own Device). As such, it contains dual monitor docking stations. In addition, black and white and color printing is available in the GSC – print jobs can be submitted from your personal computer by downloading the OIT Laptop Print Package available on the OIT Software Distribution website. Graduate students have access to their own kitchen area within the GSC, including counter space, sink, refrigerator, and microwave. The GSC Kitchen is for graduate students only – no guests or hosted events are permitted. For additional information about available library space please visit <http://library.gatech.edu/spaces-technology> . 9. Library Service Center The Georgia Tech Library and Emory University Libraries operate a state-of-the-art, climate-controlled service facility known as the Library Service Center (LSC). About 95 percent of Georgia Tech’s physical collection is housed in the LSC, freeing up valuable space in the Price Gilbert Library and Crosland buildings for student and faculty use. Students, Faculty, and Staff from both Emory and Georgia Tech are able to use the center. The building is open Monday through Friday from 8:30 a.m. to 4:30 p.m., except for Georgia Tech observed holidays. Users planning a visit are asked to e-mail lsc@library.gatech.edu or call 404-727-1400 to ensure staff will be available to address concerns.

Parking at the center is free during business hours. The LSC is located on Emory University’s Briarcliff Property, 1260 Briarcliff Road in Atlanta. The ultimate goal of this partnership is to create a seamless collection with Emory Library resources available to Georgia Tech students, faculty, staff, and vice versa. Details regarding the LSC are still being developed, but the emphasis will be to provide the best possible service and access to these materials with a focus on user needs.

XXI.COMPUTING FACILITIES

General

Planning students will have several computing facilities available to them.

As part of the College of Design, students in the School of City and Regional Planning will primarily use the two computer labs on the third floor of the Architecture West building. The main lab is equipped with approximately forty high quality PC-based computers connected to networked laser printers. Students will be assigned a login and password for access to the Architecture server where they will have allocated space for file storage. Additionally, many of the computer stations are equipped with disk drives and CD RW drives for additional data storage needs. These computers have spreadsheet, database, statistical, computer aided design, and geographic information systems (GIS) software, and run using the Windows NT platform. A second lab contains a set of additional computers. All computers in the labs are connected to the Architecture network file-server and the Georgia Tech campus network. You should make yourself aware of the available software early on in your degree program.

The City and Regional Planning Studio is open to students 24 hours per day and 7 days a week. It includes computers, a high-speed laser printer, and full Internet access. Wireless internet access is available throughout the East and West Architecture buildings and throughout campus.

Most planning faculty and courses use PC compatible hardware and software. The student considering purchase of a computer should consult the guidelines established by the College for minimum system configurations. These are available on-line at <https://arch.gatech.edu/computer-policy>. If you have specific questions or concerns regarding the purchase of computer equipment, address them to the College's help desk at helpdesk@design.gatech.edu.

Software Copyrights

It is important to keep in mind that essentially all computer software is copyrighted. Under no conditions are users of any of the Institute's, College's, or School's facilities allowed to copy any software program or CD. Evidence that a particular user has tampered with the software copy protection may result in that user becoming ineligible to use the facility again. A student may also be subject to sanctions under the Student Conduct Code. Furthermore, certain software diskettes and CDs have internal protection features, such that they are damaged when an attempt is made to copy them. Anyone damaging a software diskette or CD will be required to pay for its replacement.

XXII. STUDENT USE OF EQUIPMENT, SUPPLIES, AND WORD PROCESSING

A. Word Processing

School staff will not type student papers or correspondences. Students must complete their own word processing or contract independently with someone to do so.

B. Telephone

In cases of emergency only, the School Office can accept incoming calls for students. The emergency number is: 404-894-2350. Students may not use any other School telephones. Exemptions may be granted by faculty members who allow specific students to have access to their personal telephones for specific projects. When doing so, either the faculty member must be present or have made arrangements in advance for the student to have access the office. School staff is not allowed to open faculty offices for any students without prior approval of faculty.

C. Supplies

Students must provide their own supplies for class work. The supply area contains supplies for School and faculty use only – **not for student use**. Research and teaching assistants, who use supplies directly related to their employment, should obtain them from their faculty supervisor.

Stationery, envelopes, and related items are exclusively for official program purposes, and are not for personal use. Misuse of program supplies or resources may result in disciplinary action against the student.

D. Letterhead

Students may use the School's letterhead stationery only for correspondences related officially to School business. A faculty member must read the correspondence before it is sent out on School letterhead; advance permission alone is not sufficient. Misuse of letterhead may result in disciplinary action against the student.

E. Copiers and Fax Machine

Students may only use the departmental copiers for their research assistantship work as authorized by their faculty supervisor. There are self-service copiers available for student use for a nominal fee at the OIT Printing and Copying Services and both libraries. The OIT center also has a fax service. There is a self-service fax machine in the Student Center as well.

F. Program Facilities

The City and Regional Planning faculty area (Room 204) is closed after 5:00 p.m. each business day. School staff, faculty, and students are not allowed to open faculty offices or leave the area unlocked *under any circumstances*.

The City and Regional Planning Student Commons is intended for City and Regional Planning students' use only. The City and Regional Planning Studio and the computers in it are accessible 24 hours a day, 7 days a week. Students must memorize the combination for the lock and not allow it to be abused. Students are responsible for securing it when it is not occupied. The School of City and Regional Planning Studio area is a professional work space; therefore, it is the **responsibility of the students to keep the studio clean and tidy**. The studio can be scheduled for meetings called by students or planning student groups. Only planning classes, labs, meetings, students groups, etc. are allowed to meet in the studio. All other non-planning activities and groups are prohibited.

XXIII. PERSONAL BELONGINGS AND SAFETY

The School of City and Regional Planning does not accept responsibility for the loss of items or for items left unattended. Because of the high cost of books and calculators, students are urged to exercise care in where they place these items and their safety.

Georgia Tech is an urban campus and, at times, has been a target for thefts, muggings, and rapes. Students are warned to use care, especially at night, on weekends, and during holidays. Walking through some areas of campus alone and/or at night is a very poor idea. **Always use the buddy system after dark.** Campus Security also provides escort service to your car after dark, and the Stingerette buses operate on an on-call basis Monday-Sunday 6:00 p.m. – 7:00 a.m. (during normal operation). Service requests are taken until 6:30 a.m. This is particularly helpful to residents of Home Park, who have door-to-door service. This is available by calling 5-7433 from an on-campus telephone or 404-385-RIDE (7433) from off campus.

For more info. visit <https://gt-new.ridecell.com/request> .

Security systems have been installed in the East and West Architecture buildings. These systems require the use of “Buzz Cards” for entry into the buildings after hours and over the weekends. Please make sure you bring your Buzz Card with you if you come to the building at these times. **At no time should a City and Regional Planning student prop open a locked building door or permit access to the building to someone else.** In addition, there are several security cameras located throughout the building. Do not let the presence of these devices reduce your level of concern over your own safety and that of others. Always be careful, and please remember that safety is everyone’s business.

XXIV. ACADEMIC AND PROFESSIONAL WRITING GUIDE

The planning profession places a premium on effective writing. Practicing planners persuade best when they communicate clearly. For this reason, the School of City and Regional Planning strongly encourages quality and professionalism in writing throughout a student’s education. The SCARP Writing Guide outlines Georgia Tech’s academic honesty policy and provides a primer on effective writing skills for professionals.

A. Proper Citation and Attribution

Upon admission to Georgia Tech, all students are expected to meet the standards set out in the Georgia Institute of Technology Academic Honor Code. As explained in the Honor Code:

“Students are expected to act according to the highest ethical standards. The immediate objective of an Honor Code is to prevent any students from gaining an unfair advantage over other students through academic misconduct. Academic misconduct is any act that does or could improperly distort student grades or other student academic records. Such acts include but need not be limited to the following: **Submission of material that is wholly or substantially identical to that created or published by another person or persons, without adequate credit notations indicating authorship (plagiarism)**” (Georgia Institute of Technology 2010).

The Council of Writing Program Administrators defines plagiarism as an act that “occurs when a writer deliberately uses someone else’s language, ideas, or other original material without acknowledging its source” (WPA 2003). It can occur accidentally by insufficiently citing an original author’s words or ideas. More blatant acts involve submitting another’s words or ideas as one’s own. Importantly, both instances – inadvertent and intentional use of another’s material without attribution – constitute plagiarism. Students must take great care, therefore, to avoid the use of another’s ideas or writing without proper attribution.

Incorporating others' work in support of one's own original thought is not improper, but it must be incorporated correctly and with proper citations. Two ways to use others' work are paraphrasing and quotations.

Chicago Manual of Style: Advice on Paraphrasing and Quotations

PARAPHRASING

Paraphrasing takes information and ideas and puts them into other words. Used correctly, paraphrasing is an important tool for clarifying and defending personal statements. For example, the statement *governments may not seize private property for public use without first providing fair compensation to property owners* is a paraphrasing of the "takings clause" of the 5th Amendment to the U.S. Constitution ("nor shall private property be taken for public use, without just compensation" (U.S. Const., amend V).

QUOTATIONS

Quotations are a direct use of another's words. The Chicago Manual of Style quotes Jacques Barzun and Henry F. Graff: "Quoting other writers and citing the places where their words are to be found are by now such common practices that it is pardonable to look upon the habit as natural, not to say instinctive. It is of course nothing of the kind, but a very sophisticated act, peculiar to a civilization that uses printed books, believes in evidence, and makes a point of assigning credit or blame in a detailed, verifiable way" (Chicago Manual of Style 2003, sec 11.2). It is important to note that, when used, quotations should not make up the bulk of the text but be interspersed with original content.

PARAPHRASING V. QUOTATIONS

Paraphrasing and direct quotations of others are both effective ways to support a personal argument; however, one must decide which approach is more useful. Overuse of quotations with little personal annotation can cause distraction or simple skipping over of text by the reader.

UNNECESSARY ACKNOWLEDGEMENT

Commonly known facts, proverbs or other familiar expressions can be used without quotations or citations unless taken directly from a source. For example, the statement that Atlanta is among the most populous metropolitan regions in the country is a commonly known fact, and need not be cited. The statement that Atlanta is the 9th most populous metropolitan region in the country is a specific statistic that is not commonly known, and thus should reference the source of information (U.S. Census Bureau 2009).

B. Citation Styles

In order to avoid plagiarism and other forms of written academic dishonesty, it is necessary to utilize a standard writing style such as the Chicago Manual of Style, Modern Language Association (MLA) Style, or American Psychological Association (APA) Style. Each provides a distinct method for citing outside information and properly crediting sources. Preference for a style differs between disciplines, professors, journals, etc. **Unless otherwise indicated by an instructor, the preferred style for written work in the School of City and Regional Planning is the [Chicago Manual of Style](#), fifteenth edition, Author-Date Reference. This is also the chosen style for the *Journal of Planning Education and Research*.**

Citations are generally found in two locations of a research document. First, when paraphrasing, including a direct quotation, or citing a statistic from another source, an "in-text" parenthetical citation must follow the sentence including the ideas, words, or statistics of the source. **An in-text citation should always be**

placed at the end of the sentence including the referenced material and before the terminal punctuation (i.e., period, question mark, etc.).

Here's an example:

A study of liquefied natural gas projects found the Mare Island Energy Project to cost \$1.5 billion to complete (Boudet and Ortolano 2010, 8).

In this example, a citation is required due to the fact that a specific statistic is included in the sentence. Note that the in-text citation is included at the end of the sentence and before the terminal punctuation. In this instance, a page number is included to highlight the page of the journal article on which the specific statistic is found. A page number similarly must be included in a parenthetical citation when using a direct quotation. In instances of paraphrasing another's ideas in which no specific statistic is included, no page number is needed.

The second form of citation is the full citation that is included in a bibliography or reference list at the end of a research document. **Note that citations should not be included as footnotes unless specifically requested by an instructor.**

What follows is a list of citation styles, both reference list and in-text form, based on source type. The *Chicago Manual of Style Citation Guide* is an online resource offering a more extensive list. In the first case, examples are provided with and without a page number reference. Note that a similar convention follows for all in-text reference styles.

Journal Article

Boudet, Hilary S. and Leonard Ortolano. 2010. A Tale of Two Sitings: Contentious Politics in Liquefied Natural Gas Facility Siting in California. *Journal of Planning Education and Research* 30(1): 5-21.

In this example, the periodical volume is 30 and the issue number is 1. The page numbers of the article are included at the end.

(Boudet and Ortolano 2010)

(Boudet and Ortolano 2010, 6)

Book

Jacobs, Jane. 1961. *The Death and Life of Great American Cities*. New York: Random House.

(Jacobs 1961)

Book, edited volume

Campbell, Scott and Susan S. Fainstein, eds. 2003. *Readings in Planning Theory*. Malden, MA: Blackwell Publishing.

(Campbell 2003)

Chapter of edited volume

Lindbloom, Charles. 2003. The Science of "Muddling Through". In *Readings in Planning Theory*, ed. Scott Campbell and Susan S. Fainstein, 196-209. Malden, MA: Blackwell Publishing.

(Lindbloom 2003)

Court Case

Court cases should be cited within the text and do not have to appear in the reference list. Such as:

In *Euclid v. Ambler Realty Company* (272 U.S. 365 (1926)), the court ruled that...

Interview

Personal correspondence should be included as an in-text citation only as follows:

Stiftel, Bruce. Interviewed by Matt Stevens. September 2, 2009.

Published or broadcast interviews should be cited both in-text and within a reference list as follows:

Norris, Michele. "Michele Norris on Race, And 'The Grace Of Silence.'" by Steve Inskeep. *NPR*. September 20, 2010,
<http://www.npr.org/templates/story/story.php?storyId=129933195&ps=cprs>

(Norris 2010)

Website

Citations should include as much of the following as possible: title or a description of the page, the author of the content (if any), the owner or sponsor of the site, and a URL. Also include a publication date or date of revision or modification; if no such date can be determined, include an access date.

APA. 2010. "Planning Student Organizations." American Planning Association. Accessed September 12, 2010. <http://planning.org/students/pso/index.htm>.

(APA 2010)

C. Primer on Effective Writing

Beyond proper citation and acknowledgements, eloquent writing aids both the author and the reader. Several books and resources have been published to address key elements of written style. The *Elements of Style*, written by William Strunk Jr. and E. B White, was published in 1918 and is still a prescriptive American English style guide. The book is small, easy to read, and comprised of "elementary rules of usage," "elementary principles of composition," a "few matters of form," and a list of "commonly misspelled words." What follow are excerpts of the list of Rules of Usage and Principles of Composition, augmented in areas with additional explanation.

Strunk, William and E.B. White. 1959. *The Elements of Style*. New York: Macmillan.

Elementary Rules of Usage

1. Form the possessive singular of nouns with 's

Whenever using a possessive singular noun, 's is the appropriate addition:

Charles's friend, Burn's poem, or the witch's malice

2. In a series of three or more terms with a single conjunction, use a comma after each term except the last.

Examples:

red, white, and blue

Honest, energetic, but headstrong

He opened the letter, read it, and made note of its content

In the names of business firms, the last comma is omitted:

Brown, Shipley and Company

The abbreviation *etc.*, even if only a single term comes before it, is always preceded by a comma.

3. Enclose parenthetical expressions between commas.

The best way to see a country, unless you are pressed for time, is to travel on foot.

This rule is difficult to apply; it is frequently hard to decide whether a single word, such as "however," or a brief phrase, is or is not parenthetical. As a general rule of thumb, a parenthetical expression is a word or phrase that, when removed from the sentence, does not substantially change the structure or meaning of the sentence. The following two sentences provide a clear example of a parenthetical expression:

Jack thought Melvin should have his head examined.

Jack, thought Melvin, should have his head examined.

In the first example, the removal of the phrase "thought Melvin" would change the fundamental meaning of the sentence. In the second sentence, the phrase "thought Melvin" is parenthetical to the core idea that Jack is not entirely together mentally. In this instance, the phrase "thought Melvin" should be set off from the rest of the sentence with commas.

Other examples of parenthetical expressions include clauses introduced by "where" or "when."

In 1769, when Napoleon was born, Corsica had but recently been acquired by France. Nether Stowey, where Coleridge wrote *The Rime of the Ancient Mariner*, is a few miles from Bridgewater.

If a parenthetical expression is preceded by a conjunction, place the first comma before the conjunction, not after it.

He saw us coming, and unaware that we had learned of his treachery, greeted us with a smile.

4. Place a comma before *and* or *but* introducing an independent clause. An independent clause is a clause that itself forms a complete sentence (with subject and predicate).

The early records of the city have disappeared, and the story of its first years can no longer be reconstructed.

The situation is perilous, but there is still once chance of escape.

Sentences of this type, isolated from their context, may seem to be in need of rewriting. As they make complete sense when the comma is reached, the second clause has the appearance of an after-thought. Further, *and* is the least specific of connectives. Used between independent clauses, it indicates only that a relation exists between them without defining that relation. In the example above, the relation is that of cause and result. The two sentences might be rewritten:

As the early records of the city have disappeared, the story of its first years can no longer be reconstructed.

Although the situation is perilous, there is still one chance of escape.

5. Use a semicolon to join two or more independent clauses without a conjunction (not a comma).

If two or more clauses, grammatically complete and not joined by a conjunction, are to form a single compound sentence, the proper mark of punctuation is a semicolon.

Stevenson's romances are entertaining; they are full of exciting adventures.

It is nearly half past five; we cannot reach town before dark.

It is of course equally correct to write the above as two sentences each, replacing the semicolons by periods.

Stevenson's romances are entertaining. They are full of exciting adventures.

It is nearly half past five. We cannot reach town before dark.

If a conjunction is inserted, the proper mark is a comma.

Stevenson's romances are entertaining, for they are full of exciting adventures.

It is nearly half past five, and we cannot reach town before dark.

6. Do not break sentences in two.

In other words, do not use periods in place of commas.

I met them on a Cunard liner several years ago. Coming home from Liverpool to New York.

He was an interesting talker. A man who had traveled all over the world, and lived in half a dozen countries.

In both examples, the first period should be replaced by a comma, and the following word begun with a small letter.

D. Elementary Principles of Composition

1. Avoid excessively long paragraphs. Make the paragraph the unit of composition, with one paragraph to each topic.

If the subject on which you are writing is of slight extent, or if you intend to treat it very briefly, there may be no need of subdividing it into topics. Thus a brief description, a brief summary of a literary work, a brief account of a single incident, a narrative merely outlining an action, the setting forth of a single idea, any one of these is best written in a single paragraph. After the paragraph has been written, it should be examined to see whether subdivision will not improve it.

As a rule, single sentences should not be written or printed as paragraphs. An exception may be made of sentences of transition, indicating the relation between the parts of an exposition or argument.

In dialogue, each speech, even if only a single word, is a paragraph by itself; that is, a new paragraph begins with each change of speaker. The application of this rule, when dialogue and narrative are combined, is best learned from examples in well-printed works of fiction.

2. As a rule, begin each paragraph with a topic sentence; end it in conformity with the beginning.

Again, the object is to aid the reader. The practice here recommended enables the reader to discover the purpose of each paragraph as she begins to read it, and to retain the purpose in mind as she ends it. For this reason, the most generally useful kind of paragraph, particularly in exposition and argument, is that in which:

- A. The topic sentence comes at or near the beginning;
- B. The succeeding sentences explain or establish or develop the statement made in the topic sentence; and
- C. The final sentence either emphasizes the thought of the topic sentence or states some important consequence.

Ending with a digression, or with an unimportant detail, is particularly to be avoided.

If the paragraph forms part of a larger composition, its relation to what precedes, or its function as a part of the whole, may need to be expressed. This can sometimes be done by a mere word or phrase in the topic sentence. Sometimes, however, it is expedient to precede the topic sentence by one or more sentences of introduction or transition. If more than one such sentence is required, it is generally better to set apart the transitional sentences as a separate paragraph.

According to the writer's purpose, he may as indicated above relate the body of the paragraph to the topic sentence in one or more of several different ways. He may make the meaning of the topic sentence clearer by restating it in other forms, by defining its terms, by denying the converse, by giving illustrations or specific instances; he may establish it by proofs; or he may develop it by showing its implications and consequences. In a long paragraph, he may carry out several of these processes.

3. Use the active voice.

The active voice is usually more direct and vigorous than the passive:

I will always remember my first visit to Boston.

This is much better than:

My first visit to Boston will always be remembered by me.

The latter sentence is less direct, less bold, and less concise. If the writer tries to make it more concise by omitting "by me,"

My first visit to Boston will always be remembered.

It becomes indefinite: is it the writer, or some person undisclosed, or the world at large, that will always remember this visit?

This rule does not, of course, mean that the writer should entirely discard the passive voice, which is frequently convenient and sometime necessary.

The dramatists of the Restoration are little esteemed today.

Modern readers have little esteem for the dramatists of the Restoration.

The first would be the right form in a paragraph on the dramatists of the Restoration; the second, in a paragraph on the tastes of modern readers. The need of making a particular word the subject of the sentence will often, as in these examples, determine which voice is to be used.

The habitual use of the active voice, however, makes for forcible writing. This is true not only in narrative principally concerned with action, but in writing of any kind. As you mature as a

writer, your sense of when to employ the passive voice will further develop.

4. Put statements in positive form.

Make definite assertions. Avoid tame, colorless, hesitating, non-committal language.

He was not very often on time.	He usually came late.
He did not think that studying Latin was much use.	He thought the study of Latin useless.
The Taming of the Shrew is rather weak in spots. Shakespeare does not portray Katharine as a very admirable character, nor does Bianca remain long in memory as an important character in Shakespeare's works	The women in The Taming of the Shrew are unattractive. Katharine is disagreeable, Bianca insignificant.

The last example, before correction, is indefinite as well as negative. The corrected version, consequently, is simply a guess at the writer's intention.

All three examples show the weakness inherent in the word "not." Consciously or unconsciously, the reader is dissatisfied with being told only what is not; he wishes to be told what is. Hence, as a rule, it is better to express a negative in positive form.

Not honest	Dishonest
Not important	Trifling
Did not remember	Forgot
Did not pay any attention to	Ignored
Did not have much confidence in	Distrusted

Negative words other than *not* are usually strong:

The sun never sets upon the British flag.

5. Omit needless words.

Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all his sentences short, or that he avoid all detail and treat his subjects only in outline, but that every word tell.

Many expressions in common use violate this principle:

the question as to whether	whether (the question whether)
there is no doubt but that	no doubt (doubtless)
used for fuel purposes	used for fuel
He is a man who	He

In a hasty manner	Hastily
This is a subject which	This subject
His story is a strange one.	His story is strange.

In particular, the expression *the fact that* should be revised out of every sentence in which it occurs.

Owing to the fact that	Since (because)
In spite of the fact that	Though (although)
Call your attention to the fact that	Remind you (notify you)
I was unaware of the fact that	I was unaware that (did not know)
The fact that he had not succeeded	His failure
The fact that I had arrived	My arrival

Who is, which was, and the like are often superfluous.

His brother, who is a member of the same firm	His brother, a member of the same firm
Trafalgar, which was Nelson's last battle	Trafalgar, Nelson's last battle

A common violation of conciseness is the presentation of a single complex idea, step by step, in a series of sentences which might to advantage be combined into one.

Macbeth was very ambitious. This led him to wish to become king of Scotland. The witches told him that this wish of his would come true. The king of Scotland at this time was Duncan. Encouraged by his wife, Macbeth murdered Duncan. He was thus enabled to succeed Duncan as king. (55 words.)	Encouraged by his wife, Macbeth achieved his ambition and realized the prediction of the witches by murdering Duncan and becoming king of Scotland in his place. (26 words.)
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6. Avoid a succession of loose sentences.

This rule refers especially to loose sentences of a particular type, those consisting of two coordinate clauses, the second introduced by a conjunction. Although single sentences of this type may be unexceptionable, a series soon becomes monotonous and tedious.

An unskillful writer will sometimes construct a whole paragraph of sentences of this kind, using as connectives *and*, *but*, and less frequently, *who*, *which*, *when*, *where*, and *while*.

The third concert of the subscription series was given last evening, and a large audience was in attendance. Mr. Edward Appleton was the soloist, and the Boston Symphony Orchestra furnished the instrumental music. The former showed himself to be an artist of the first rank, while the latter proved itself

fully deserving of its high reputation. The interest aroused by the series has been very gratifying to the Committee, and it is planned to give a similar series annually hereafter. The fourth concert will be given on Tuesday, May 10, when an equally attractive program will be presented

Apart from its triteness and emptiness, the paragraph above is bad because of the structure of its sentences, with their mechanical symmetry and sing-song.

If the writer finds that he has written a series of sentences of the type described, he should recast enough of them to remove the monotony, replacing them by simple sentences, by sentences of two clauses joined by a semicolon, by periodic sentences of two clauses, by sentences, loose or periodic, of three clauses—whichever best represent the real relations of the thought.

7. Make use of parallel construction in sentence structure.

This principle, that of parallel construction, requires that expressions of similar content and function should be outwardly similar. The likeness of form enables the reader to recognize more readily the likeness of content and function.

The unskillful writer often violates this principle, from a mistaken belief that he should constantly vary the form of his expressions. It is true that in repeating a statement in order to emphasize it he may have need to vary its form.

Formerly, science was <i>taught</i> by the textbook method, while now the laboratory method is <i>employed</i> .	Formerly, science was <i>taught</i> by the textbook method; now it is <i>taught</i> by the laboratory method.
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The left-hand version gives the impression that the writer is undecided or timid; he seems unable or afraid to choose one form of expression and hold to it. The right-hand version shows that the writer has at least made his choice and abided by it.

By this principle, an article or a preposition applying to all the members of a series must either be used only before the first term or else be repeated before each term.

<i>The</i> French, <i>the</i> Italians, Spanish, and Portuguese	<i>The</i> French, <i>the</i> Italians, <i>the</i> Spanish, and <i>the</i> Portuguese
<i>In</i> spring, summer, or <i>in</i> winter	In spring, summer, or winter (<i>In</i> spring, <i>in</i> summer, or <i>in</i> winter)

Correlative expressions (both, and; not, but; not only, but also; either, or; first, second, third; and the like) should be followed by the same grammatical construction. Many violations of this rule can be corrected by rearranging the sentence.

It was both a long ceremony and very tedious.	The ceremony was both long and tedious.
A time not for words, but action	A time not for words, but for action
Either you must grant his request or incur	You must either grant his request or incur

his ill will.	his ill will.
My objections are, first, the injustice of the measure; second, that it is unconstitutional.	My objections are, first, that the measure is unjust; second, that it is unconstitutional.

8. Keep related words together.

The position of the words in a sentence is the principal means of showing their relationship. The writer must therefore, so far as possible, bring together the words, and groups of words, that are related in thought, and keep apart those which are not so related.

The subject of a sentence and the principal verb should not, as a rule, be separated by a phrase or clause that can be transferred to the beginning.

Wordsworth, in the fifth book of <i>The Excursion</i> , gives a minute description of this church.	In the fifth book of <i>The Excursion</i> , Wordsworth gives a minute description of this church.
Cast iron, when treated in a Bessemer converter, is changed into steel.	By treatment in a Bessemer converter, cast iron is changed into steel.

9. Place the emphatic words of a sentence at the end.

The proper place for the word, or group of words, which the writer desires to make most prominent is usually the end of the sentence.

Humanity has hardly advanced in fortitude since that time, though it has advanced in many other ways.	Humanity, since that time, has advanced in many other ways, but it has hardly advanced in fortitude.
This steel is principally used for making razors, because of its hardness.	Because of its hardness, this steel is principally used in making razors.

10. Avoid “weasel words”.

You are responsible for what you say whether or not your conclusions are suspended from probably's, seems', might's, is not inconsistent with's, and similar rigging, but if you weaken the connections between your ideas by using string instead of steel, your whole argument looks wobbly. If it is wobbly, you have a problem words won't solve. If it isn't, why make it look bad?

11. Avoiding bias in language.

Practicing planners work extensively with diverse populations. To communicate effectively to these audiences, the language of planners needs to be respectful of the diversity of its readers. Further, it should, as the American Psychological Association writes, “be free of implied or irrelevant evaluation of the group or groups being studied.” Because of the cultural biases inherent in the evolution of the language we use today, language poses particular difficulties in communicating respectfully and effectively with regards to gender, race, ethnicity, age, disability and sexual preference.

Consider the issue of gender equity. The political purpose that motivates *his/her, s/he*, and the like is widely supported. References to *he* and *him* to refer generally to males and females, provide neither the respect they deserve. However, no amount of good will can make a singular antecedent take a plural pronoun (“Will Passenger Smith please make *theirself* known to the flight attendant?”), or change the fact that language is a spoken medium of which writing is a recording. Because *his/her* is unsayable, it’s not really language.

Effective writers will seek to make precise language an ally of right thinking, not its enemy. Writers can frequently use gender-neutral language by restructuring sentences to avoid the use of gender-specific pronouns, such as *he* and *she*. These pronouns are best used when referring to a specific individual or set of individuals. If you cannot avoid the use of gender-specific words, try to use them to increase clarity, and to emphasize inclusiveness, as in:

A mayor may sometimes want his or her police commissioner to keep his or her name out of the news.

A number of guidelines to avoiding bias in writing effectively with regards to gender, race, ethnicity, age, disability and sexual orientation are available. A particularly thorough one is found in *the Publication Manual of the American Psychological Association (1994)*, which we quote from below:

You can test your writing for implied evaluation by reading it while (a) substituting your own group for the group or groups you are discussing or (b) imagining you are a member of the group you are discussing (Maggio, 1991). If you feel excluded or offended, your material needs further revision. Another suggestion is to ask people from that group to read your material and give you candid feedback. (p. 46.)

12. Be conscious of common errors.

Spelling errors and typing mistakes are of no intellectual importance, though they distract the reader and should be combed out. But these errors, as well as errors of style, tend to reduce the intellectual merit of your work in the eyes of the reader. Problems include

- the use of considerable to mean many, much, etc.
- confusion between who and whom, or that and which
- loose references and dangling modifiers

E. Additional Published and Web-Based Resources

Chicago Manual of Style Citation Guide

http://www.chicagomanualofstyle.org/tools_citationguide.html

Georgia Institute of Technology. 2010. “The Honor Code.” Accessed September 12, 2010.

<http://www.honor.gatech.edu/plugins/content/index.php?id=9>.

Glossary of English Grammar Terms

<http://www.usingenglish.com/glossary.html>

Purdue Writing Center
<http://owl.english.purdue.edu/owl/resource/589/01/>

Stilman, A. 1992 *Grammatically Correct*. Cincinnati: Writer's Digest Books.

Strunk, William and E.B. White. 1959. *The Elements of Style*. New York: Macmillan.

The Chicago Manual of Style. 15th ed. Chicago: University of Chicago Press, 2003.

The Council of Writing Program Administrators. January 2003. "Defining and Avoiding Plagiarism: The WPA Statement on Best Practices." Accessed September 12, 2010.
<http://www.wpacouncil.org/positions/WPAplagiarism.pdf>.

UC Berkeley Library Citation Guide
<http://www.lib.berkeley.edu/instruct/guides/citations.html>

United States Census Bureau. 2009. *2009 Population Estimates: Cumulative Estimates of Population Change for Metropolitan Statistical Areas and Rankings: April 1, 2000 to July 1, 2009*. Accessed September 12, 2010. <http://www.census.gov/popest/metro/CBSA-est2009-pop-chg.html>.

Writing Program Websites
<http://www.wpacouncil.org/writingprograms/index.html>

12 Common Errors, An Editors Checklist – University of Wisconsin
<http://writing.wisc.edu/Handbook/CommonErrors.html>

F. Georgia Tech Writing and Communication Resources

1. Architecture Library Writing Reference Reserve Collection

We have arranged with the College of Design library to maintain on permanent reserve a collection of the reference books we recommend to you for improving your writing. You are strongly encouraged to consult them. In addition to those mention above, the writing reference collection includes: Writing With Power by Peter Elbow, A Manual of Style from the University of Chicago Press, and the Random House Handbook by Frederick Crews.

2. Graduate Studies Writing Program at Georgia Tech

The Language Institute at Georgia Tech offers some limited assistance to native English speakers in the form of writing classes in which students can enroll while attending the MCRP School. There will be an additional expense for these classes. For more information on these classes go to the Language Institute Webpage at <http://www.esl.gatech.edu/li/servlet/LIHome>

The Language Institute also now offers low-cost language and communication "tune-up" short courses for new international students in the two weeks before the fall semester starts. They are intended to help students acclimate to the American classroom and give them some pointers on what language skills they need to develop.

3. Center for Enhancement in Teaching and Learning (CETL)

CETL offers several courses to assist students in enhancing their English teaching and writing skills. (See <http://www.cetl.gatech.edu/courses/gradcourses> for more information)

Frequent offerings include:

8000 Graduate Teaching Assistant Preparation (1 credit)

This course is an introduction to the procedural information and practical skills needed to be an effective graduate teaching assistant. NOTE: This section is intended for those graduate students who are not enrolled in a department-specific section. Permits for students in department-specific sections will be automatically requested by their departments.

8721 Academic Writing for Graduate Students (1 credit)

Through examination of writing samples, practice, and working in small groups, students learn techniques for enhancing proposal, thesis, and dissertation preparation as well as methods for evaluating writing as future instructors and thesis directors. NOTE: This course is designed for students who are already writing and communicating fluently in English.

8741 Methods of Academic Presentation (1 credit)

Communication of concepts and ideas is an important element of working in the academic and corporate communities. While oral presentation is a prevalent format for communication, especially in the scientific fields, written communication is usually the focus of graduate communication courses. With such a focus on written discourse, most graduate students never consider the absolute importance of being good oral communicators. This course will help students better understand the conventions of academic and professional oral discourse. After building a better foundational understanding of this type of discourse, students will develop strategies for designing and delivering oral presentations. Students are encouraged to use current research as a basis for their work in this course. Students will be expected to participate as critical audience members, offering feedback to peers. Additionally, students will have an opportunity to engage in self-assessment by reviewing recordings of their presentations. NOTE: This course is designed for students who are already writing and communicating fluently in English.

For Non-native/Non-fluent English Communicators:

8802 ITA: Communication Skills for International Teaching Assistants (2 credits)>

This course helps students who will be Graduate Teaching Assistants (GTAs) at Georgia Tech develop the skills and strategies they need in order to carry out teaching responsibilities for their departments and communicate more effectively with undergraduate students in their classes. The course focuses on language use for instructional purposes and provides an orientation to American classroom culture and basic pedagogy. Language goals for the participants include clearer pronunciation, appropriateness in presentation of information, interaction and rapport with students, and

improved listening comprehension. By the end of the course, students will be expected to successfully complete a number of micro-teaching assignments.

8722 Academic Writing for International Graduate Students (1 credit)

This course aids international graduate students in enhancing their academic writing skills in English through exposure to and practice of producing examples of academic writing.

8793 Oral Communication for International Graduate Students (2 credits)

In this class, students will work on fluency, accuracy, and appropriateness in spoken communication to in order to prepare them to participate more effectively and confidently in their academic communities.

8795 Advanced English for International Graduate Students (2 credits)

This is an advanced oral skills class designed to help graduate students improve their verbal ability in English for teaching, making presentations, and interacting in academic and professional situations.