

RELATIONSHIP OF CLEMSON'S MASTER OF REAL ESTATE DEVELOPMENT PROGRAM TO SUSTAINABILITY

The concept of a Master of Real Estate Development Program (MRED) is to create the educational opportunity for encouraging future development entrepreneurs to produce exciting, quality projects respecting *environmental and economic sustainability*, social consciousness, design excellence, and financial feasibility within the risk-reward framework. The curriculum is imbued with the concept of sustainability and best practices in concert with natural resources. We identify the general background of the program and specifically discuss many aspects of sustainability within most of the classes.

The basic decision-making principle of sustainable development is the integration of environmental protection with conventional development. Instead of conventional development at the environment's expense, or environmental protection instead of development, the idea is to achieve both development and environmental protection at the same time.¹ Conventional development embraces more than economic development; it also includes improvements in social well-being, peace, and security. As stated in the Rio Declaration of 1992, "human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature."² As identified in the famous Brundtland Commission definition, sustainable development is "development that meets the needs of the present without compromising the ability of future generations should not be burdened by today's shortsightedness." These are basic underlying principles of the MRED program, which will emphasize best practices from the development, design, and environmental community.

Sustainability has been an underlying principle for the MRED as established by both Deans. It is also a major component of the Department of Planning and Landscape Architecture's emphasis on smart growth and urban sprawl studies. Dean Schach, who is a Fellow of the American Society of Landscape Architects and past president of the ASLA, actively pursued their national efforts in the Smart Growth movement in Washington DC. This also has been an underlying theme of the American Planning Association and the American Institute of Certified Planners, which have taken the leadership position nationally in the Growing Smart movement started in the early 1990s. Clemson's graduate City and Regional Planning Program is one of 70 nationally accredited planning programs. Virtually every development organization has a smart growth and sustainability strategy as part of their missions. The department's sprawl initiative has resulted in a new seminar series sponsored by the Center for Community Growth and Change that will explore the environmental impacts of decentralized development.

Research efforts in the Center for Real Estate Development will emphasize these issues as well. The Center will research public-private partnerships and be the conduit of information for the State and region linking into Clemson's new Restoration Institute from a developer/finance perspective.

- a. Finance mechanisms tax increment finance, tax credits and incentives, CD and housing programs, etc.
- b. Brownfields/greyfields

¹ John C. Dernbach, *Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking*, 10 Ind. J. Global Legal Stud. 247 (2003).

² United Nations Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/Conf.151/5/Rev.1, 21 I.L.M. 874 (1992), available at <http://www.un.org/documents/ga/conf151/aconf15126-IannexI.htm>

- c. In-fill development
- d. Redevelopment/restoration
- e. Mixed-use
- f. Historic Preservation
- g. Housing and CD Strategy
- h. Land Assembly/Eminent Domain/Barriers
- i. Valuation/appraisal issues

The Center will also research new urbanist/neo-traditional/street connectivity concepts from a financing/market research/regulatory perspective.

CURRICULUM ASPECTS

The curriculum is imbued with the concept of sustainability and best practices of development in concert with natural resources. Guest speakers, case studies, tours, and discussions of sustainable aspects of development are mainstays of the total program. Many of these points are identified in the syllabi in outline form but we highlight some of the key sustainable related aspects to be included in most of the MRED classes after each course description—this is not intended to be an exhaustive description but rather an illustration of key concepts that will be included:

ARCH 820 Building Design and Construction Principles (3 cr.)

Essential principles for quality design and construction. Emphasis on design, programming, and sustainability issues for different project types. Nature and characteristics of construction materials, equipment, and systems used in modern buildings will be presented and how they affect function and feasibility.

- The whole concept of green architecture and building
- Energy efficiency
- LEED certification
- Environmentally sound land planning
- Adaptive reuse and rehabilitation
- Mixed use buildings
- Life cycle costing: Operating vs. Capital Cost Aspects of design and building materials

CRP 602 Human Settlement (3 cr.)

Overview of forces and trends affecting community growth and change-- historical, ecological, economic, demographic, design, and development--pertaining to human settlement patterns and their interrelationship in the urbanization process, especially at the national, regional, townscape, and neighborhood scale. Course will be team-taught from various perspectives.

- Historical evolution of cities
- Regional/Global Perspectives
- Environmental History
- Ecology
- Sustainability
- Affordable Housing and Ecology
- Dynamics of Neighborhood Change
- Problems of Urbanization

CRP 802 Site Planning and Infrastructure (3 cr.)

Working knowledge of natural systems and infrastructure systems as they affect site planning and development.

- Concept of scale and land patterns
- Land forms and topography
- Slope analysis
- Earthwork, grading, cut and fill
- Watersheds and wetlands
- Infrastructure systems including water and wastewater
- Subdivisions—best practices
- Green design and sustainability
- Site Plan Review
- Design Guidelines
- Ethical and environmental questions raised in planning

CRP 830 Introduction to GIS (1 cr.)

This introductory course introduces participants to ArcGIS as a tool for real estate development analysis and provides the foundation for becoming a successful GIS user. Students are introduced to fundamental GIS concepts. Topics covered include displaying, downloading, analyzing, and printing public domain geographical data sets.

- Background to examine sites from a landscape ecology perspective
- Background to examine neighborhood change dynamics and growth modeling

CSM 862 Personnel Management and Negotiations (3 cr.)

The role of management and unions in the construction industry. Topics include contract negotiation, collective bargaining, dispute resolution and management for productivity improvement.

- Techniques for managing public regulations pertaining to building codes and array of land regulations and permitting
- Ethical perspectives

CSM 866 Contractor Role in the Development Process (3 cr.)

Course addresses the various roles and responsibilities of the contractor in development including discussion of the owner/designer/constructor relationship. Course is not for CSM Master students (However, it may be able to be used as a leveling course for new CSM master degree students not having all required undergraduate level prerequisites).

- Relationship of contractor to environmental and OSHA regulations
- Relationship of contractor working with designer/developer in achieving viable developments including best practice recommendations of alternative materials and construction methods
- Relationship to Life cycle costing
- Ethical perspectives

FIN 615 Real Estate Investment (3 cr.)

Structure and analysis of real estate investment emphasizing financial theory and analysis technique. Case study and project-oriented homework assignments facilitate the understanding of real estate investments.

- Consideration of best practice alternative scenarios pertaining to capital and operating costs pertaining to short and long term returns on investment
- Consideration of investment implications for open space protection, mixed use development, and walkable communities
- Consideration of environmental risk and programs to enhance financial feasibility including brownfield remediation and redevelopment
- Consideration of returns on investment based on policies and programs to encourage neighborhood revitalization, building recycling and adaptive reuse, rehabilitation, community reinvestment, infill development and redevelopment of abandoned areas

FIN 616 Real Estate Valuation (3 cr.)

Advanced course in commercial real estate valuation. Topics include income capitalization, cash equivalency, highest and best use analysis, the cost approach, the direct sales comparison approach, and DCF analysis.

Valuation of an array of issues pertaining to sustainability including:

- All the issues cited above in FIN 615
- Affordable housing programs
- Green building/design and implications on valuation
- Effects of contamination and superfund designation
- Scenic easements and water/natural resource vistas and preservation
- Valuation of gated, golf course, and open space communities
- Functional obsolescence of buildings and neighborhoods
- Impacts of environmental regulations (coastal, wetlands, air, historic, cultural, etc)
- Treescape and open space protection
- Conservation easements and land trusts

FIN 617 Real Estate Finance (3 cr.)

Application of financial analysis and theory to real estate; mortgage credit analysis and current financing techniques for residential and commercial properties. Topics include financial institutions, syndications, and construction financing.

- Sources of Capital and perspectives of the capital markets for affordable housing, mixed use development, adaptive reuse and rehabilitation, Smart Growth/walkable communities, infill and redevelopment, and transit-oriented development
- Impacts of the Community Reinvestment Act and the Home Mortgage Disclosure Act on capital availability in lower income communities
- Tax credits and syndications for affordable housing, historic preservation, and land conservation
- Relationship of financial capital markets to all the aspects identified in FIN 615 and 616.

LAW 848 Law for Real Estate Professionals (3 cr.)

This course provides the real estate professional with the fundamentals of law as it applies in the real estate arena. The course explores the various legal forms of ownership, the form and process of real estate transactions and governmental regulation of land use.

- Land use and environmental law
- Constitutional principles
- Legal aspects of comprehensive plans, zoning, and regulatory aspects pertaining to subdivisions, environment, design, open space/landscaping, and other public purpose ordinances
- NEPA and various acts
- Public trust doctrine, police power and eminent domain
- Regulatory aspects and permitting processes pertaining to construction and development

MBA 819 Intro to Accounting and Finance (3 cr.)

Basic concepts of accounting and finance with emphasis on using financial data for decision making; measuring, processing, reporting and analysis of financial information; use of discounted cash flow analysis in valuation and the measurement of risk and return.

- Foundational principles for accounting and financial analysis for real estate ventures

MBA 836 Real Estate Principles (3 cr.)

Practices and analysis of real estate finance and investment. Topics include real estate financing techniques, mortgage loan underwriting, real estate ownership structure and syndications, real estate taxation and real estate investment risk analysis.

- Introductory course laying the foundation for understanding real estate finance analysis
- Responsibilities of appraisers and brokers

RED 800 Real Estate Development Process (3 cr.)

Real estate and land development process from the developer's perspective. Cases and lectures are presented by leading experts in the development industry. Emphasizes participants of the development team and how to become a developer/"master builder" to create a superior built environment.

- Substantial part of class is devoted to best practices in development with numerous presentations by guest speakers on all aspects of the development process, including the environment and sustainability issues.
- Emphasizes role of public-private partnership in the development approval process especially from the public perspective of land regulation—comprehensive and regional planning, zoning techniques, subdivision regulations, new urbanist/neo-traditional regulations, environmental regulations and permitting, and other public purpose regulation.
- Market overview of demand and supply for different land uses and locations, especially focusing on central city, inner ring suburb, and new growth perspectives.

RED 801 Real Estate Market Analysis (3 cr.)

Processes and data sources used to analyze the supply and demand for various building types. Explores demographic, technological, and economic trends affecting markets. General market analysis supply and demand approaches, including the use of GIS, are developed and applied primarily to residential, retail, and office markets at specific sites.

- Class will consider implications of market analysis for sustainable community prototypes such as mixed use, mixed income communities, new urbanist/walkable communities, master planned/planned unit environments, downtown vs. suburban development, neighborhood preservation and revitalization, historic preservation and adaptive reuse, redevelopment of abandoned and brownfield areas, open space/waterfront development, cluster and tight lot development, transit oriented development, etc.
- Investigation of market trends pertaining to environmental consciousness, place-making, walkable communities with less reliance on automobile; related market trends affecting new concepts of residential, retail, and office environments
- Investigation of market trends and implications for infill and redevelopment in central cities and inner ring suburbs

RED 802 Real Estate Development Field Tour Seminar (3 cr.)

Course examines the processes of creating quality development within the risk-reward framework focusing on design feasibility from the perspectives of the development team. An approximate two-week tour of the SC. Coast or other environs visits approximately forty developments and the key actors involved.

- This class is oriented to quality development and related issues along the coast of SC including some premier examples of sustainable development including award winners from the environmental community. The two class instructors are specialists in redevelopment and in landscape ecology, describing first hand the design/environmental/economic interface of development.

RED 803 Public-Private Partnership Development (3 cr.)

Focuses on public-private partnerships in the structuring, negotiating, and implementing the design, development, construction, and management of buildings and areas. Emphasis on redevelopment/rehab and infill development; incentive tools and techniques, and market and feasibility issues for development within the risk-reward framework.

- The whole class focuses on one of the key tenets of sustainability—the reuse of older buildings and areas for redevelopment and infill development including brownfields and grayfields. These types of development typically require an array of public-partnership relationships including innovative financing and regulatory approvals. Neighborhood preservation and revitalization are integral to attract development and slow down suburbanization processes.
- Best practices will be included for encouraging sustainable development.

RED 804 Practicum in Residential and Master Planned/Resort Communities (3 cr.)

Exploration of the residential development process, especially for large-scale subdivisions and master planned/resort communities. Guest speakers, case studies, and field visits will be used. A capstone preliminary feasibility analysis for a real world proposed development will be completed by diverse student teams.

- This project will vary by year but an example of this type of project is the coordination of architecture, planning, and landscape architecture studios to prepare a comprehensive plan for a sustainable community in York County on land owned by Hugh McColl, past

Chairman of the Bank of America. In planning this new community, students engaged in a sophisticated environmental systems analysis with the help of a landscape ecology expert who was brought in as a project consultant. The MRED program would have been an excellent participant in this process working on the array of development issues including market and financial feasibility for the proposed center. The intention of this class was to pursue cutting edge developments including concepts of sustainability with a nationally renowned environmental educational facility. Similar types of innovative projects will be pursued annually.

RED 805 Practicum in Commercial Development (3 cr.)

Exploration of the commercial development process, especially for office and retail properties. Guest speakers, case studies, and field visits will be used. A capstone preliminary feasibility analysis will be completed by diverse student teams for a real world proposed development.

- As with the residential class above, this class will focus on cutting edge commercial developments that could be part of an overall planning effort for possibly a downtown or commercial corridor, such as redevelopment of an abandoned shopping center. A recent effort by Clemson could have included the MRED program. As in 804, the Architecture, Planning, and Landscape Architecture studios performed a 17-mile Reedy River Corridor analysis in conjunction with Upstate Forever, a leading environmental advocacy group. Proposals were reviewed for development in downtown Greenville that could have had MRED participation.
- Both 804 and 805 will also have the opportunity to participate in projects being reviewed by the Greenville Design Center, established as a partnership between Clemson and the city. The intention is to work on the best possible developments nationally, although various developments in South Carolina will be available options.

RED 810 Real Estate Seminar Roundtable (1 cr.)

This weekly course brings students and premier real estate professionals together through on-site or videoconference two-hour sessions. Presentations and discussions occur regarding cutting-edge projects and industry issues from around the country and internationally.

- Certainly, many speakers will be selected on the basis of being acknowledged as leaders in the development industry including a variety of speakers pertaining to sustainability issues including environmental specialists. Speakers will be selected based on their complementing the program through elaboration of key areas that may not be fully covered in the classes.

ELECTIVES are available in various university disciplines, in consultation with the program advisor.

The intention of the program is to encourage students to take electives that further round out their education. The program coverage is broad and extensive, but electives are possible for those who have required classes that are redundant to their prior education. The faculty intend to determine eligible electives on campus, given required pre-requisite issues of other disciplines. As an example, classes in the City and Regional Planning Program that would be available to MRED students as electives pertaining to sustainability include:

806	Urban Systems & Growth Management
822	Urban Design
832	Problems in Site Planning
834	Spatial Modeling Using GIS
835	GIS & Remote Sensing Applications for Trend Analysis
840	Seminar in Coastal Planning
841	Seminar in Environmental Planning
870 (PO ST 870)	Seminar in Sustainable Development
872	Housing Issues in the US
873	Economic Development Planning
883	Techniques for Analyzing Development Impacts

CONCLUSION

We hope this clarifies how we envision sustainability as a key component of the MRED program. In concert with principles of place making, quality development that meets both economic and environmental sustainability will be integral to all the classes in the program.