

3.
ACADEMIC FACILITIES
DATA & ANALYSIS

I. Space Inventory

A. *Relationship to Campus Master Plan Future Land Uses*

In the University of Florida Educational Plant Survey, the analysis of indoor academic space is based on a calculation of net assignable square feet (NASF) of facilities that provide academic functions. According to the Educational Plant Survey, the Space Needs model applied is the State University System Space Needs Generation Formula (formula). The formula was designed to recognize space requirements for a site based on academic program offerings, student enrollment by level, and research programs. The most important measure in the formula is full-time-equivalent student enrollment. Other important measures include positions, research activity, and library materials. The following space categories are included in the formula:

<u>Instructional</u>	<u>Academic Support</u>	<u>Institutional Support</u>
Classroom Facilities	Study Facilities	Student Academic Support
Teaching Laboratory Facilities	Instructional Media Facilities	Office/Computer Facilities
Research Laboratory Facilities	Auditorium/Exhibition Facilities	Campus Support Facilities
	Teaching Gymnasium Facilities	

Application of the formula results in unmet space needs that are then compared to the effect of proposed projects on the facilities inventory. The Educational Plant Survey for FY 2013/14 through FY 2018/19 identified an unmet need of 920,786 NASF of instructional space; 651,029 NASF of unmet need in the academic support category; and, 433,614 NASF of unmet need in the institutional support category for a total of 2,005,427 NASF of unmet space need in these space types.

In terms of the campus master plan future land use classifications, a facility within the Academic/Research land use category will have a preponderance of Instructional space; however, Academic Support and Institutional Support space will typically be in the same building. Within the Educational Plant Survey, libraries include study facilities and instructional media that are classified within the Academic Support space type but are identified in the Academic/Research land use classification of the campus master plan. Auditorium/Exhibition spaces may be found within academic buildings in the Academic/Research land use classification or within museums and performance centers placed in the Cultural land use. Teaching Gymnasiums are typically included in buildings that fall within the Academic/Research land use classification; however, some such facilities also serve student recreation and may be present in the Active Recreation land use.

B. *Academic Space Definitions*

The State University System of Florida Space Needs Formula provides definitions for each university space type to be used in the analysis of space need and capital project justification. As described above, these space definitions do not directly translate to campus master plan land use classifications. These definitions are at the level of individual facilities, floor plans and room assignments. However, understanding these definitions and the formula assessment of need is important to understanding the ten-year capital projects list of the campus master plan.

Classroom Facilities. A classroom is defined as a room used for classes and not tied to a specific subject or discipline by equipment in the room or the configuration of the room. Included in this category are rooms generally used for scheduled instruction that require no special, restrictive equipment or configuration. These include lecture rooms, lecture-demonstration rooms, seminar rooms, and general purpose classrooms. Related service areas such as projection rooms, telecommunications control booths, preparation rooms, closets, storage areas, etc. are included in this category if they serve classrooms. The net assignable square feet (NASF) needed for classrooms is based upon 22 NASF per student station, 40 periods of room use per week, and 60% station occupancy. These standards result in a space factor of 0.92 NASF per FTE enrollment. Using this space factor, NASF requirements are determined by multiplying the FTE enrollment for each discipline by level times the number of weekly student hours per FTE that are scheduled in classrooms.

The effect of applying the formula to all universities by level and by discipline provides an average of 12 NASF per FTE for main campuses. An example for an upper level FTE student in Engineering is:

$$.92 \text{ (Space Factor)} \times 15.0 \text{ (Weekly Student Hours Per FTE)} = 13.8 \text{ NASF Per FTE}$$

where Space Factor = $\frac{\text{Station Size}}{\text{Hours Per Week} \times \text{Occupancy Rate}}$ or $\frac{22}{40 \times .60} = .92 \text{ NASF}$

Teaching Laboratory Facilities. A teaching laboratory is defined as a room used primarily for scheduled classes that require special purpose equipment or a specific room configuration for student participation, experimentation, observation, or practice in an academic discipline. Included in this category are rooms generally called teaching laboratories, instructional shops, computer laboratories, drafting rooms, band rooms, choral rooms, music practice rooms, language laboratories, studios, theater stage areas used primarily for instruction, instructional health laboratories, and similar specially designed or equipped room if they are used primarily or group instruction in formally or regularly scheduled classes. Related service areas are also included in this category.

The NASF need for teaching laboratories is computed by discipline by level and is based on established station sizes, weekly student hours per FTE, and utilization levels for room use and station occupancy. The room use standard is 24 hours for lower level and 20 hours for upper level. The station occupancy rate is 80% for both levels.

The effect of applying the formula to all universities by level and by discipline provides an average of 15 NASF per FTE for main campuses. An example for an upper level student in Engineering is:

$$7.81 \text{ (Space Factor)} \times 5.0 \text{ (Weekly Student Hours Per FTE)} = 39.05 \text{ NASF Per FTE}$$

where Space Factor = $\frac{\text{Station Size}}{\text{Hours Per Week} \times \text{Occupancy Rate}}$ or $\frac{125}{20 \times .80} = 7.81 \text{ NASF}$

Although most universities in the System currently generate more than 50,000 NASF, a minimum facility need of 50,000 NASF is provided for the development of future campuses.

Research Laboratory Facilities. A research laboratory is defined as a room used primarily for laboratory experimentation, research or training in research methods, professional research and observation, or structured creative activity within a specific program. Included in this category are labs used for experiments, testing or "dry runs" in support of instructional, research or public service activities. Non class public service laboratories which promote new knowledge in academic fields are included in this category (e.g., animal diagnostic laboratories and cooperative extension laboratories). Related service areas that directly serve these laboratories are included in this category.

The NASF need for research laboratories is based on an allotment of space by discipline for each research faculty FTE and graduate student FTE. Space needs are generated separately for research faculty and graduate students.

Research Faculty Space needs are generated by discipline for Educational and General (E&G) and Contract and Grant (C&G) faculty. The number of E&G research faculty is based upon the E&G FTE faculty to FTE student ratio and the percentage of E&G research faculty FTE for the actual or base year. The number of C&G research faculty FTE is based on a three-year average growth rate for C&G faculty applied to the actual or base year. The allotment of space for each research faculty FTE varies from 75 to 450 NASF depending on discipline.

Graduate Students Space needs are generated by discipline for beginning and advanced graduate student FTE. Graduate student FTE enrollment is divided between beginning and advanced levels based upon the number of graduate credit hours completed by the student (advanced graduates are those with 36 or more graduate credit hours).

Research laboratory space is generated for selected University Support Personnel System positions having research responsibilities that require laboratory facilities. The Beginning Graduate space factor is used for these positions.

Space allotments for advanced graduates are the same as those applied to research faculty (from 75 to 450 NASF). The allotment of space for a beginning graduate FTE considers sharing of research space and varies from 3 to 90 NASF. For example, the space allotment for an advanced graduate student in Engineering is 450 NASF.

Study Facilities. Study facilities include study rooms, stack areas, processing rooms, and study service areas. The NASF needed for study facilities is based on separately determined NASF needs for study rooms, carrel space, stack areas, and study service areas.

Study Rooms (Other than Computer Study Rooms): The NASF need for study rooms is based on 25 NASF per station for 25% of the undergraduate FTE.

Computer Study Rooms: The NASF need for computer study rooms is one station for every 15 FTE, with a station size of 30 NASF.

Carrels: The NASF need for carrels is based on 30 NASF per station for 25% of the beginning graduate FTE, for 50% of the law FTE, for 25% of the advanced graduate science FTE, and for 50% of the advanced graduate non-science FTE, plus 20 NASF per station for 5% of the science FTE faculty and for 25% of the non-science FTE faculty.

Stack Areas: The NASF need for stack areas is based on an amount of space per library volume with all library materials converted to volume equivalents (includes all holdings such as bound volumes, video and audio tapes, cassettes, microfilms, etc.). The projected volume counts are based on current inventories plus a continuation of the previous year's acquisitions.

Non-Law Stacks:

0.10 NASF/volume for the first 150,000 volumes

0.09 NASF/volume for the second 150,000 volumes

0.08 NASF/volume for the next 300,000 volumes

0.07 NASF/volume for all volumes above 600,000

Law Stacks

0.14 NASF/volume for the first
150,000 volumes

0.12 NASF/volume for the second
150,000 volumes

0.10 NASF/volume for the next
300,000 volumes

0.09 NASF/volume for all volumes
above 600,000

Study Facilities Service Areas: The NASF need for study service areas is based on 5% of the total NASF needed for study rooms, carrels, and stack areas.

Instructional Media Facilities. Instructional Media rooms are used for the production or distribution of multimedia materials or signals. Included in this category are rooms generally called TV studios, radio studios, sound studios, photo studios, video or audio cassette and software production or distribution rooms, and media centers. Service areas such as film, tape, or cassette libraries or storage areas, media equipment storage rooms, recording rooms, engineering maintenance rooms, darkrooms, and studio control booths are also included in this category.

A minimum facility of 10,000 NASF and 0.5 NASF per FTE over 4,000 is provided for instructional media space on main campuses and 0.5 NASF per FTE for branch campuses with no minimum facility allowance.

Auditorium/Exhibition Facilities. Auditorium/exhibition facilities are defined as rooms designed and equipped for the assembly of many persons for such events as dramatic, musical, devotional, livestock judging, or commencement activities or rooms or areas used for exhibition of materials, works of art, artifacts, etc. and intended for general use by faculty, students, staff, and the public.

Service areas such as check rooms, ticket booths, dressing rooms, projection booths, property storage, make-up rooms, costume and scenery shops and storage, green rooms, multimedia and telecommunications control rooms, workrooms, and vaults are also included in this category.

The NASF need for auditorium/exhibition facilities is based on a space allotment of 3 NASF per FTE with a 25,000 NASF minimum facility allowance for main campuses.

Teaching Gymnasium Facilities. A teaching gymnasium is defined as a room or area used by students, staff, or the public for athletic or physical education activities. Included in this category are rooms generally referred to as gymnasiums, basketball courts, handball courts, squash courts, wrestling rooms, weight or exercise rooms, racquetball courts, indoor swimming pools, indoor putting areas, indoor ice rinks, indoor tracks, indoor stadium fields, and field houses. Service areas such as locker rooms, shower rooms, ticket booths, rooms for dressing, equipment, supply, storage, first-aid, towels, etc. are also included in this category.

The NASF need for teaching gymnasiums is based on a minimum facility for each main campus of 50,000 NASF for the first 5,000 FTE enrollment, plus an additional 3 NASF per FTE for enrollment over 5,000 FTE.

C. *Academic Space Needs in the Educational Plant Survey*

Based upon space definitions and formulas in the Educational Plant Survey, additional space is needed in facilities that are included in the Academic/Research and Academic/Research-Outdoor land use categories during a five-year period to 2019. These spaces serve various classroom, laboratory, study, instructional media and exhibition/auditorium space. Specifically, the Educational Plant Survey identified an unmet space need for 920,786 NASF of Classrooms and Laboratories, 540,963 NASF of Study and Instructional Media, 33,518 NASF of Auditorium/Exhibition, and 76,548 of Teaching Gymnasium facilities. These space needs are only through the year 2019, and do not include teaching and research areas that are unique to the University of Florida when compared to other State University System schools such as agricultural sciences, veterinary medicine, engineering and medicine. These, and other academic pursuits at the University of Florida, have unique space and equipment needs that do not necessarily fit within the statewide formulas. Much of the academic support need identified in the Educational Plant Survey falls under the category of “study” and identifies shortages in library resources that will be addressed in the Academic/Research Element. The space need identified in the following table accounts for funded projects under construction in 2014 including Heavener Hall and the Chemistry Chemical Biology Building. The space need reported in the table below is in addition to the space that is provided by these funded projects.

Comparison of Existing Satisfactory Space with Generated NASF Needs by Category, 2014-2019

Formula Generated Net Assignable Square Feet by Category

Space Category	Space Needs By Space Type	Satisfactory Space Inventory	Unmet Need
Instructional			
Classroom	366,692	363,150	3,543
Teaching Laboratory	562,406	390,730	171,677
Research Laboratory	1,914,945	1,169,814	745,566
Academic Support			
Study	960,383	433,924	526,459
Instructional Media	26,556	12,052	14,504
Auditorium/Exhibition	109,134	75,616	33,518
Teaching Gymnasium	145,876	69,328	76,548
Instructional Support			
Student Academic Support	Included in Study		
Office/Computer	1,965,874	1,612,289	357,330
Campus Support Services	267,743	194,043	76,284
Total	6,319,609	4,320,944	2,005,427

II. Campus Master Plan

The Campus Master Plan defines the Academic/Research Land Use in two different classifications. These are intended to segregate those areas targeted for development of typical classroom and laboratory buildings from those academic and research pursuits that utilize pastures, arboretums, orchards, row crops, greenhouses and other such outdoor facilities. The 2005-2015 Future Land Use Element identifies these land use classifications as follows:

- **Academic/Research:** *The Academic/Research land use classification identifies those areas on the campus that are appropriate for academic and research building development. Adjacent land use and proximity to other Academic/Research uses are primary location criteria for Academic/Research in order to consolidate these functions into convenient, walkable clusters of development. Extension functions are included in the Academic/Research land use classification and are encouraged to be located on the campus perimeter or satellite properties if they require frequent visitor access. Ancillary uses associated with an academic/research facility, such as utilities, service drives, user and disabled parking, and functional open space are allowed within the Academic/Research land*

use classification. Development densities, heights and patterns in the Academic/Research land use shall respect pedestrian connections, historic context (where applicable), adjacencies to other land uses and creation of functional open space while maximizing the efficient use of building footprints to the extent feasible within construction budgets and program requirements.

- **Academic/Research Outdoor:** *The Academic/Research Outdoor land use classification identifies those areas on the campus that are appropriate for agriculture and livestock activities providing teaching, research and extension that require close proximity to other main campus resources or are located on satellite properties away from the main campus. Allowable structure development shall typically include greenhouses, pole barns, equipment storage sheds, and other support buildings associated with an agricultural or livestock use. Office and laboratory structures shall be allowable on conditions that their size, scope and function are related to and compatible with agriculture and livestock activities. Ancillary uses associated with an academic/research outdoor activity, such as utilities, service drives, user and disabled parking, and functional open space are allowed within the Academic/Research Outdoor land use classification.*

The Future Land Use map for 2015-2025 identifies 273.7 acres in the Academic/Research Land Use classification, and 325.2 acres in the Academic/Research-Outdoor Land Use classification. This is a decrease of 9 acres from that identified in the previous campus master plan. These changes primarily attribute to parking lots in the northeast core part of campus that are now anticipated to remain as parking rather than convert to academic building use. The loss of Academic/Research Outdoor land is primarily the site of former research plots at Energy Park that are no longer in use.

Based on the Campus Master Plan Future Land Use map, the university contained 9,953,007 gross square feet of building space in the Academic/Research Land Use classification as of March 2014. The 10-year Capital Projects list includes approximately 1,227,000 gross square feet of net new space to be constructed within the Academic/Research and Academic/Research-Outdoor Land Use during in the 10-year plan horizon. Only a very small amount of this space, including greenhouses and a livestock pavilion are anticipated in the Academic/Research-Outdoor areas.

III. Evening Class Offerings

Extending the hours of class offerings is one strategy to increase efficiency of classroom utilization, and spread the impacts of parking and transportation beyond the typical operating peak hours. The University of Florida Campus Master Plan, 2000-2010, included a recommendation in Goal 2, Policy 1.1 for increasing night class offerings as a means of dispersing traffic impacts. The University has increased class offerings after 5:00 PM by forty-nine class meetings from 593 class meetings in 1999 to 642 class meetings in 2005. This analysis was based on software that counted multiple-period classes as one meeting. Based on this analysis, 274 more students were served by evening classes in 2005 than in 1999. Beginning in 2008, the number of evening sessions was reduced to 370 in 2013.

Enrollment for Evening Sections, 2005-2013

Year	Section Count	Enrollment	Change
2005	477	13946	
2006	485	14629	683
2007	491	14862	233
2008	478	15433	571
2009	431	14897	-536
2010	432	13284	-1613
2011	405	12341	-943
2012	413	12449	108
2013	370	10537	-1912

Notes: Source: Fall 2005-2008 submitted IAF; Fall 2009-2013 Submitted SIF
 Year: Fall term. Section count is unduplicated.