Texas Higher Education Funding
"Formula Funding 101"

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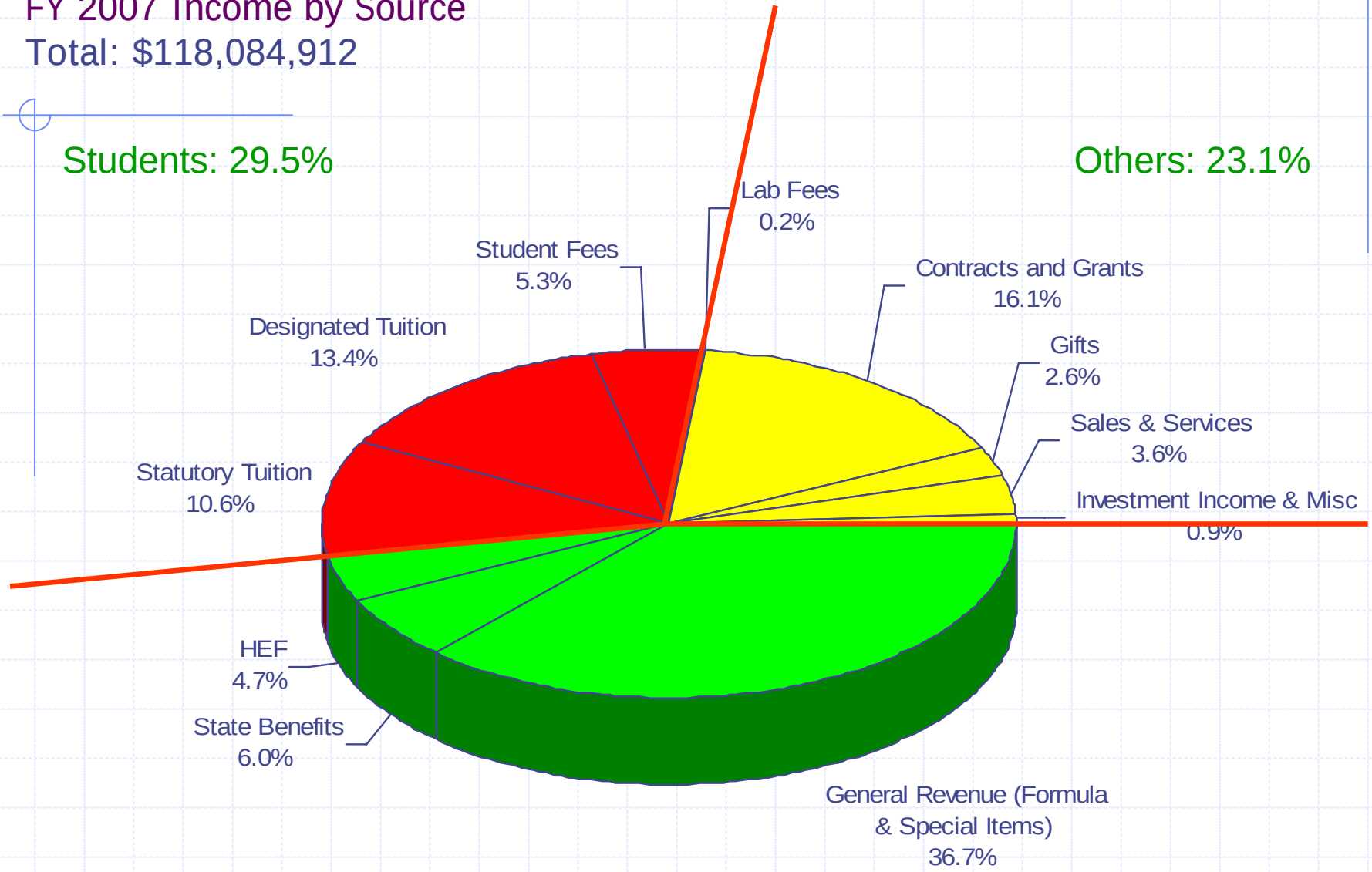
Who Pays the Bills?

FY 2007 Income by Source
Total: $118,084,912

Students: 29.5%

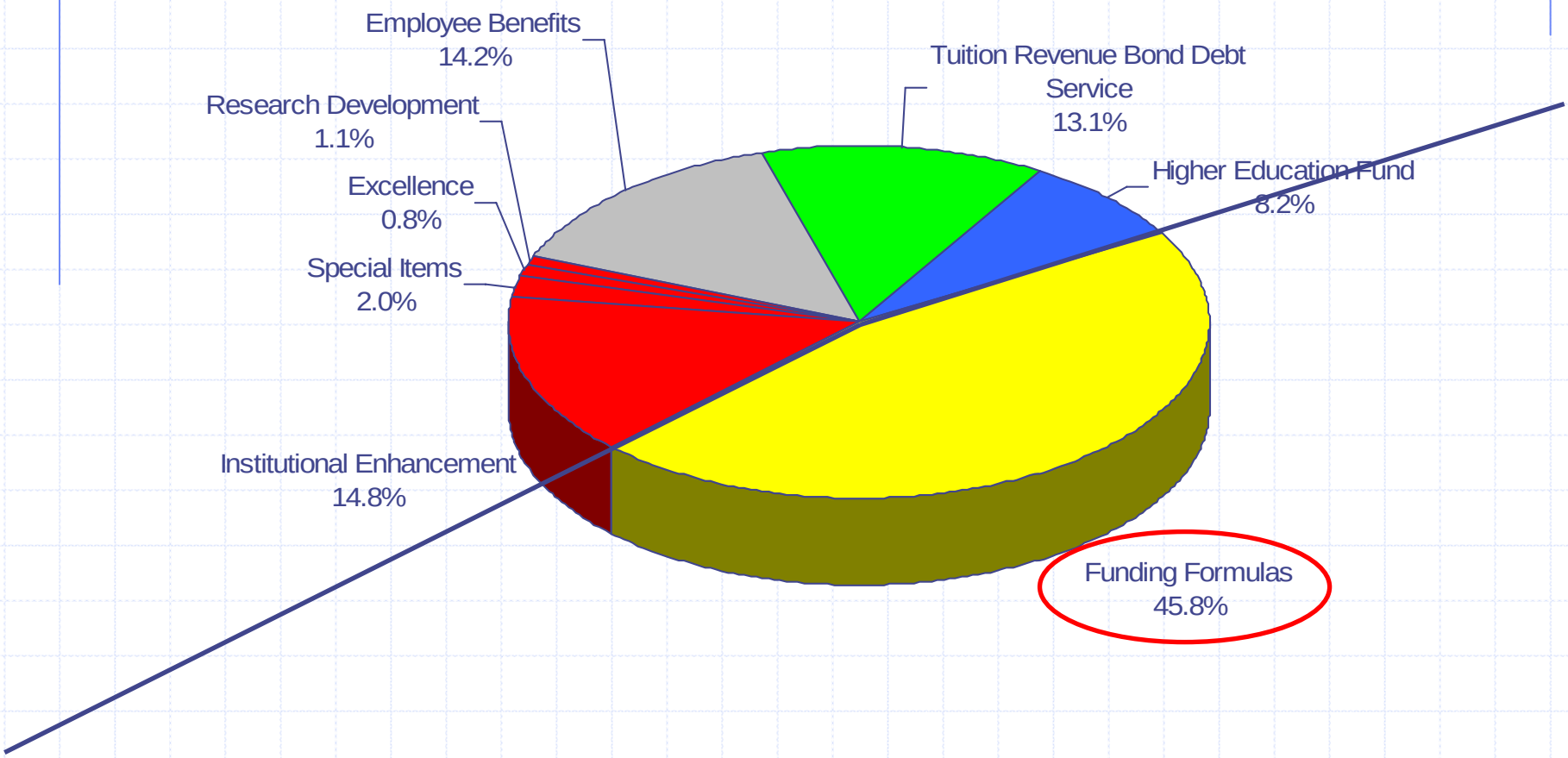
Others: 23.1%



Taxpayers: 47.4%

FY 2007 State Appropriation

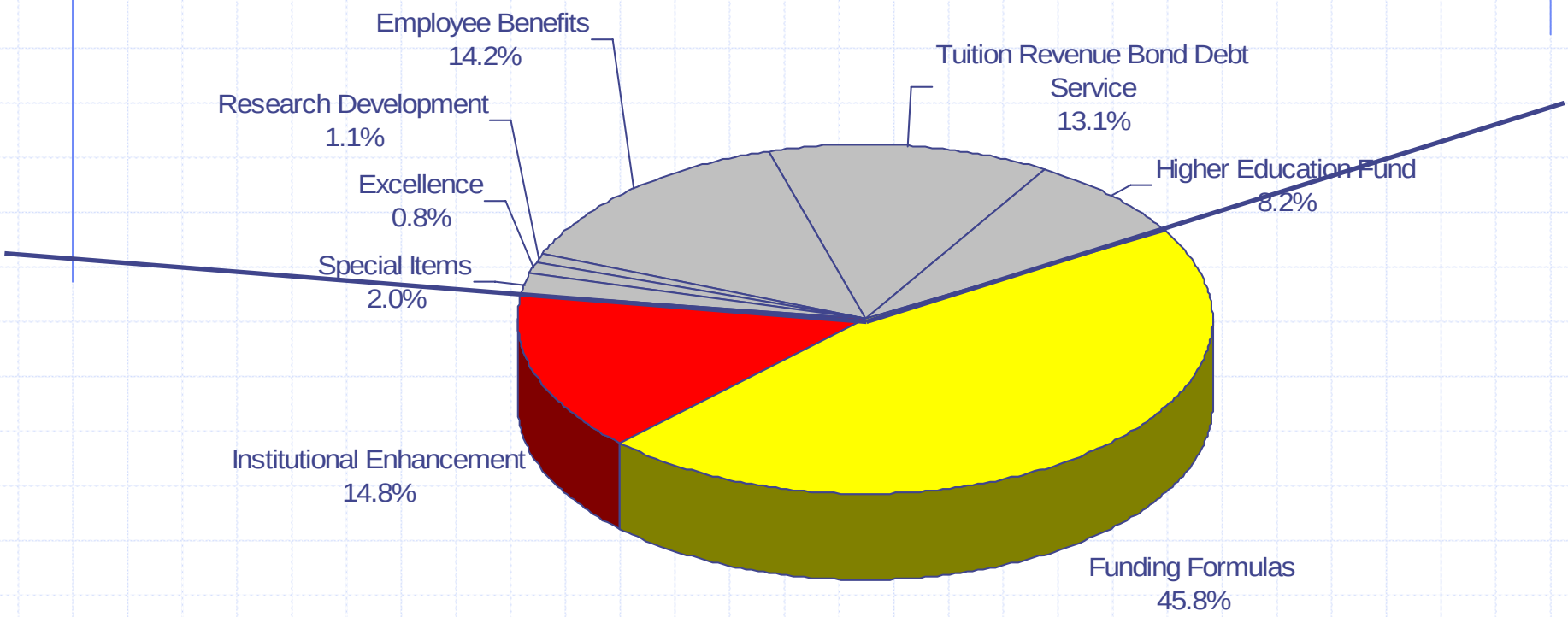
$67,570,449 (Sources: General Revenue plus Statutory Tuition)



FY 2007 State Appropriation

$67,570,449 (Sources: General Revenue plus Statutory Tuition)

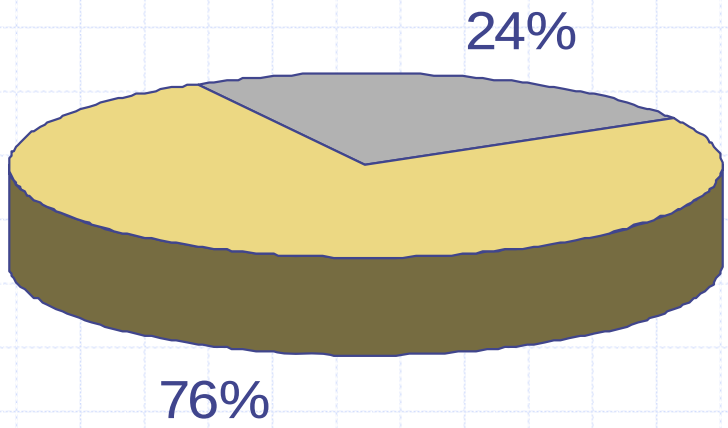
- Dedicated use money



- Flexible use money

Flexible, discretionary revenue

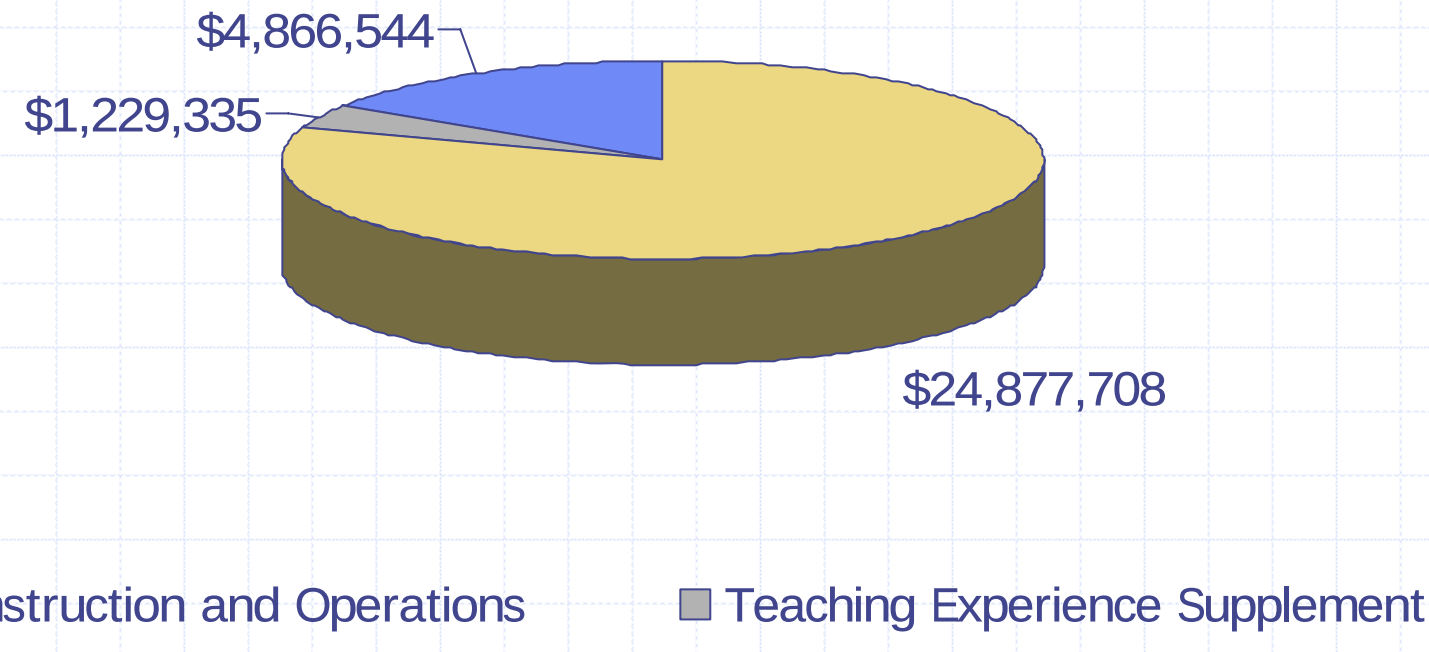
- When one looks only at the funds NOT restricted for specific uses...
- Formula generated dollars account for over three quarters of our flexible use state appropriated funds



Because they are such an important revenue source, we need to understand the funding formulas

- If we understand how the formulas work to generate money, we can devise strategies to maximize the income the formula system provides ***without*** sacrificing academic quality.
- Working “smart” as well as working hard should be our goal.
- There are three formulas:
  - Educational & General Space Support
  - Instruction and Operations
  - Teaching Experience Supplement

FY 2007 Income by Formula



The Importance of Credit Hours

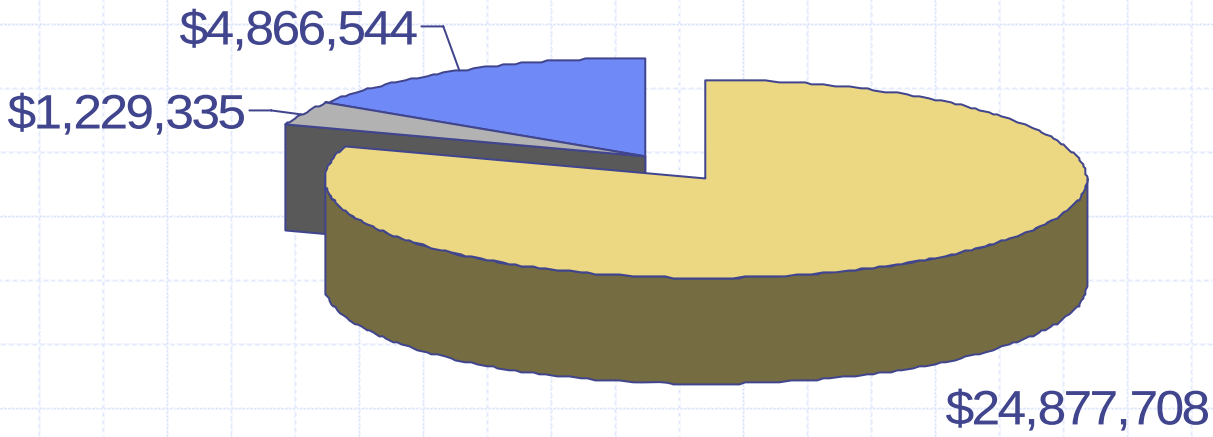
- All three formulas are driven solely or partly by semester credit hours taught
  - The Instruction and Operations formula
    - driven totally by credit hours.
  - The Teaching Experience formula
    - driven by the number of undergraduate credit hours taught by tenured or tenure-track faculty.
  - The E&G Space Support formula
    - driven by utility cost and
    - by the Coordinating Board space need model
      - The space model is driven by credit hours taught, academic program mix, staff size, research expenditures, and Library collection size.

The financial importance of instruction

- No matter how much we might like it to be otherwise, the reality is that, *from the point of view of the funding formulas,* the important research and service missions of the university generate almost no state formula income.

- Semester credit hours taught is virtually the only thing that counts in generating state funding.

The Instruction and Operations Formula



What functions is it supposed to pay for?

- Faculty salaries
- Departmental operating expense (staff salaries, office operations, professional travel etc.)
- Library operations
- Instructional support (academic administration, academic support services, etc.)
- Research enhancement (internal research grant programs)
- Student services (admission, registrar, financial aid, etc.)
- Institutional support (accounting, purchasing, human resources, central administration, etc.)

How does the formula generate funds?

- We need to understand two fundamental concepts:
  - Formula Base period
  - Weighted Semester Credit Hours

The “Base Period”

- The base period is the 12 month period used to count the credit hours used in the appropriations formulas.
- It is the summer session and fall semester of even numbered years and the spring semester of odd numbered years.
- Why this strange counting period?
- Because this “base period” provides the most recent 12 months of semester credit hour data available when the legislature meets in the spring of odd numbered years.
- The number of base period credit hours produced determines formula appropriations **for the next two years.**
- State appropriation amounts for each year of the biennium are essentially the same…we grow students and costs annually, but state funding increases in two-year steps.

- By the way, credit hours generated in the non-base year have no effect on formula funding appropriations.
- But, enrollment growth in the non-base year builds enrollment towards the next base period funding cycle and creates additional designated tuition revenue.

What are weighted credit hours?

- We are funded by the number of credit hours we teach in the base period, but not all credit hours are funded at the same dollar value.
  - Conceptually, the formula weighting is supposed to reflect the differences in cost related to teaching courses at different levels and in different academic disciplines.
  - Graduate courses, for example, are expected to be taught in smaller class sections, and usually by more senior faculty, so graduate credit hours are weighted heavier than undergraduate credit hours because they require more faculty cost per student.

What are weighted credit hours?

- Courses in different fields are also weighted relative to each other.
  - For example, a credit hour in a lower division history lecture course is weighted less than a course in studio art or nursing which require smaller sections and specialized facilities.
  - All these weightings are displayed in a chart called the “Formula Matrix”.

The formula weighting matrix (FY 2007 version)

Weighting	Lower Div	Upper Div	Masters	Doctoral
Liberal Arts	1.00	1.86	4.07	10.89
Science	1.66	3.00	7.63	19.72
Fine Arts	1.63	2.74	5.91	12.31
Teacher Education	1.34	1.91	2.89	8.41
Agriculture	2.06	2.62	7.14	13.43
Engineering	2.43	3.28	7.21	18.35
Home Economics	1.32	1.97	3.70	8.47
Social Services	2.01	2.30	4.59	12.10
Vocational Training	2.14	2.52	-	-
Physical Training	1.35	1.30	-	-
Health Services	2.10	2.80	6.10	12.75
Business Admin	1.24	1.61	3.95	16.59
Teacher Practice	1.75	2.19	-	-
Technology	1.93	2.46	5.59	-
Nursing	3.58	4.96	5.89	13.49

Weighted Credit hours

- **Weighted credit hours are credit hours taught multiplied by the weighting matrix**
- For example:
  - A 3 hour lower division history course with 20 students enrolled would generate **60** weighted SCH (20 students x 3 SCH x 1.00 weight)
  - A 3 hour masters level business course with 20 students enrolled would generate **237** weighted SCH (20 students x 3 SCH x 3.95 weight)
  - A 3 hour doctoral level science course with 20 students enrolled would generate **1,183** weighted SCH (20 students x 3 SCH x 19.72 weight)

Getting from weighted SCH to Instruction & Operations income

- Each biennium, the appropriations act specifies the dollar value of each weighted semester credit hour.
  - For FY 2007, the value was $55.72 per weighted SCH
- So, looking at our examples again:
  - The lower division history course generated **$3,343** (60 wsch x $55.72)
  - The masters level business course generated **$13,206** (237 wsch x $55.72)
  - The doctoral level science course generated **$65,928** (1,183 wsch x $55.72)

Formula Income generated by a 3 credit hour class with 20 students enrolled

I/O Income	Lower Div	Upper Div	Masters	Doctoral
Liberal Arts	3,343	6,218	13,607	36,407
Science	5,550	10,030	25,509	65,928
Fine Arts	5,449	9,160	19,758	41,155
Teacher Education	4,480	6,386	9,662	28,116
Agriculture	6,887	8,759	23,870	44,899
Engineering	8,124	10,966	24,104	61,348
Home Economics	4,413	6,586	12,370	28,317
Social Services	6,720	7,689	15,345	40,453
Vocational Training	7,154	8,425	-	-
Physical Training	4,513	4,346	-	-
Health Services	7,021	9,361	20,394	42,626
Business Admin	4,146	5,383	13,206	55,464
Teacher Practice	5,851	7,322	-	-
Technology	6,452	8,224	18,688	-
Nursing	11,969	16,582	19,691	45,100

The relationship between formula income, class size, and instructional cost

- FY 2007 average 9 month faculty salary for assistant professor / associate professor / professor ranks combined (CUPA Fall 2006)
  - $63,924
- Average faculty salary per 3 hour course assuming 8 courses per year (4/4 teaching load)
  - **$7,991** ($63,924 / 8)
- Average faculty salary per 3 hour course assuming 6 courses per year (3/3 teaching load)
  - **$10,654** ($63,924 / 6)
- Note that these average costs are for regular full-time faculty only (excluding adjunct faculty who are paid $2,500 to $3,000 per course)

Average class section size needed to pay average faculty salary cost at 4/4 load using **all** of the I/O formula income generated just to pay faculty salaries

"break even" class size	Lower Div	Upper Div	Masters	Doctoral
Liberal Arts	48	26	12	4
Science	29	16	6	2
Fine Arts	29	17	8	4
Teacher Education	36	25	17	6
Agriculture	23	18	7	4
Engineering	20	15	7	3
Home Economics	36	24	13	6
Social Services	24	21	10	4
Vocational Training	22	19	-	-
Physical Training	35	37	-	-
Health Services	23	17	8	4
Business Admin	39	30	12	3
Teacher Practice	27	22	-	-
Technology	25	19	9	-
Nursing	13	10	8	4

Average class section size needed to pay average faculty salary cost at 3/3 load using **all** of the I/O formula income generated just to pay faculty salaries

"break even" class size	Lower Div	Upper Div	Masters	Doctoral
Liberal Arts	64	34	16	6
Science	38	21	8	3
Fine Arts	39	23	11	5
Teacher Education	48	33	22	8
Agriculture	31	24	9	5
Engineering	26	19	9	3
Home Economics	48	32	17	8
Social Services	32	28	14	5
Vocational Training	30	25	-	-
Physical Training	47	49	-	-
Health Services	30	23	10	5
Business Admin	51	40	16	4
Teacher Practice	36	29	-	-
Technology	33	26	11	-
Nursing	18	13	11	5

One more complication...

- Obviously, we should teach as few lower division courses as we can because the junior and senior level ones pay so much better
- If we just numbered everything as an upper division course, we would be in great shape, right?

- No, there is a catch in the fine print....
  - Funding level is set at the **LOWER** of either the level of the course **OR** the level of the student enrolled in it.

  - So, if a freshman student enrolls in an upper division course we only get lower division weighted credit hours for that student.
    - (21% of the enrollment in our upper division courses this year was by lower division students)
  - Conversely, if a senior student enrolls in a lower division course, we only get lower division funding for that student based on the level of the course.
    - (12% of the enrollment in our lower division courses this year was by upper division students)

How to play the I&O formula game

- **Some winning strategies:**
  - **Curriculum**
    - Keep the curriculum as lean as is academically responsible in order to minimize teaching small classes.
    - A lean curriculum can benefit both students and faculty:
      - Students, because the courses they need are taught more frequently
      - Faculty, because fewer course preparations can mean more time for scholarship.
    - Keep the number of “low-income” 1000 and 2000 level courses in the curriculum as small as possible without sacrificing quality and affecting transferability.
    - Think carefully about the financial implications of “curriculum creep” and of creating numerous specialized concentrations that can fragment enrollment.
    - **Some indicators to watch:**
      - The number of major study courses listed in the catalog vs. the number of hours required for the major.
      - The number of courses taught on an every-other-year rotation because there is insufficient enrollment demand to offer them every year.
      - The number of courses in the catalog vs. the number of faculty available to teach them.

How to play the I&O formula game
(Is our curriculum too big for us to deliver efficiently?)

- Number of catalog courses per FTE faculty (Fall 2006)

Institution	Courses per FTE Faculty
TEXAS A&M INTERNATIONAL UNIV	7.1
TEXAS A&M UNIV-CORPUS CHRISTI	6.5
TEXAS A&M UNIV-KINGSVILLE	5.6
STATE Average	**4.5**
TEXAS STATE UNIV-SAN MARCOS	4.4
U. OF TEXAS-PAN AMERICAN	4.2
U. OF TEXAS AT SAN ANTONIO	4.0

- Number of head count students per catalog course (Fall 2006)

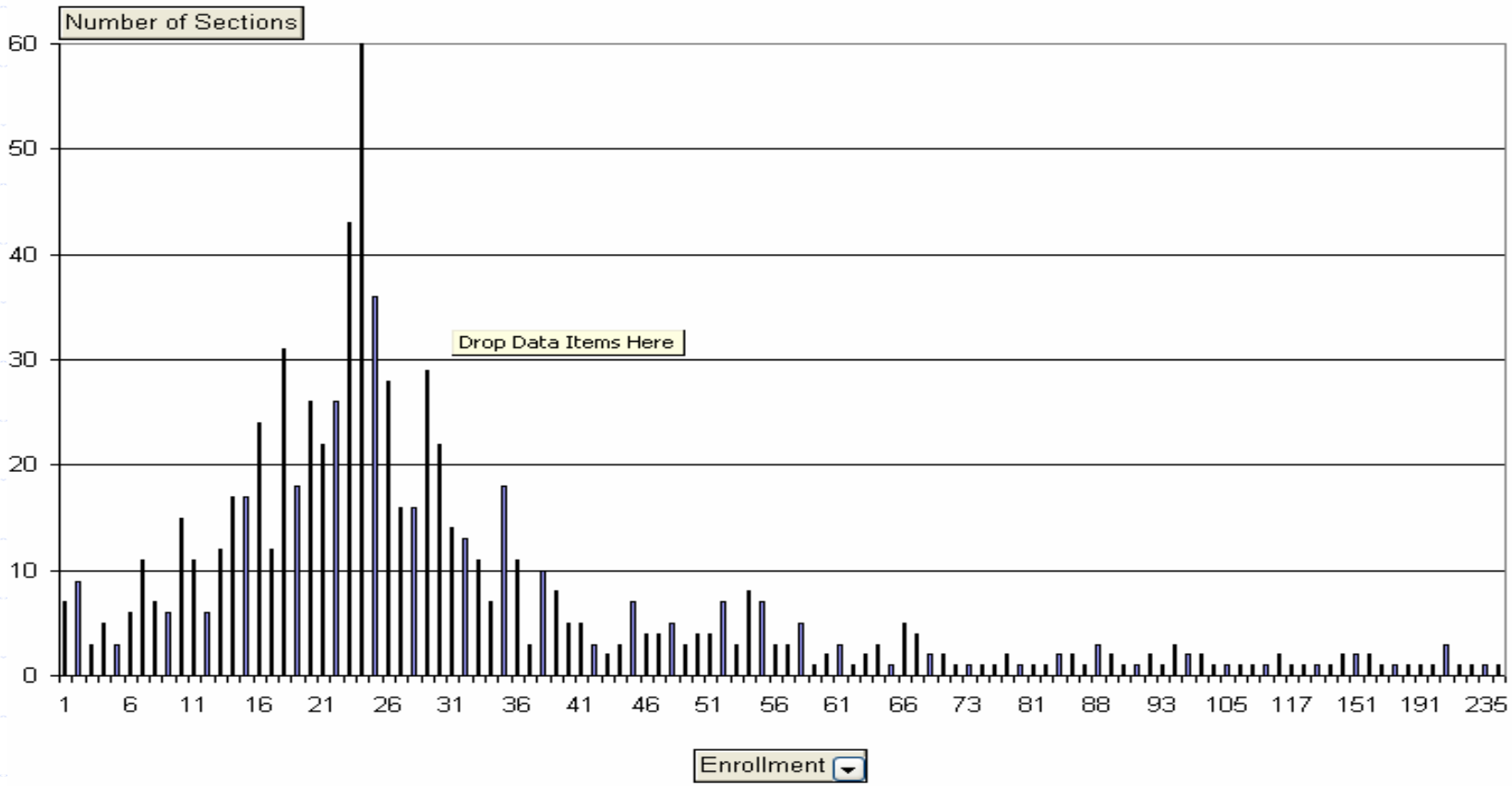
Institution	Students per course
TEXAS A&M INTERNATIONAL UNIV	3.5
TEXAS A&M UNIV-CORPUS CHRISTI	**3.6**
TEXAS A&M UNIV-KINGSVILLE	3.7
STATE AVERAGE	**5.4**
U. OF TEXAS-PAN AMERICAN	7.4
TEXAS STATE UNIV-SAN MARCOS	7.9
U. OF TEXAS AT SAN ANTONIO	7.9

How to play the I&O formula game

- **Some winning strategies:**
  - **Course Delivery**
    - Understand the economics of class size, especially at the lower division. Think more about minimum income than minimum size. In most disciplines, our current undergraduate minimum size guideline of 15 students won't pay the bills.
    - Some classes have to be small for good, sound academic reasons, but others **must** be large enough to make the formula numbers work.
    - Each discipline must identify and offer some courses designed to handle large enrollment.

How to play the I&O formula game

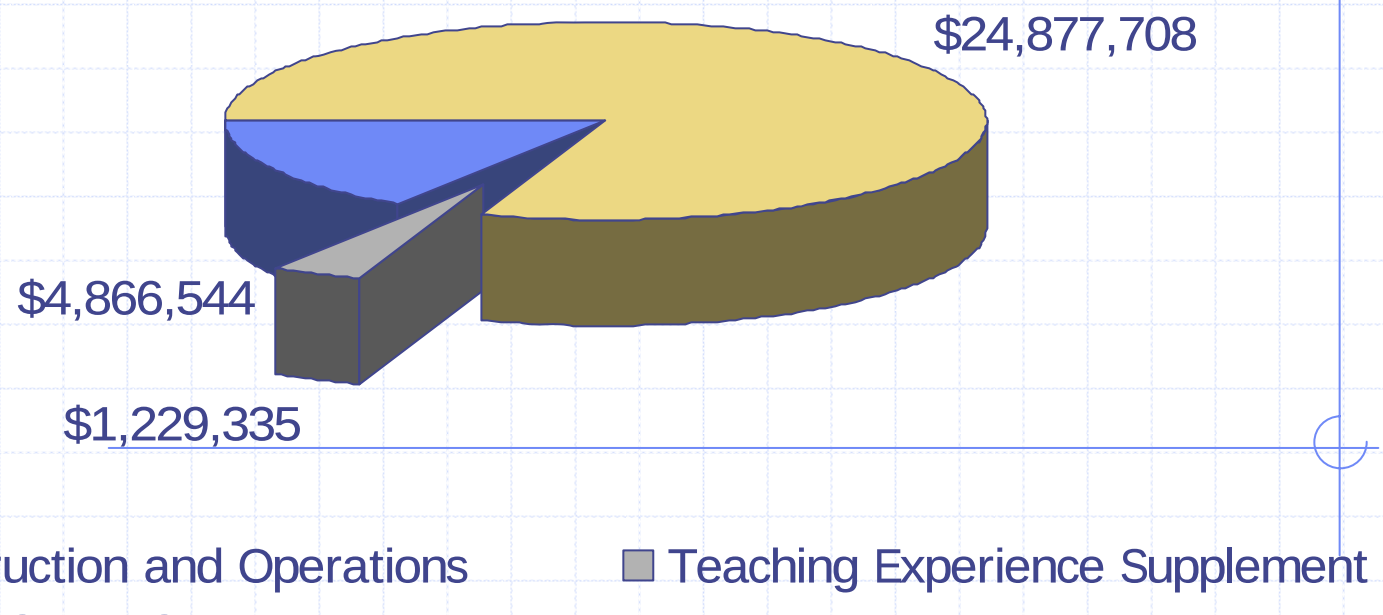
- **Course Delivery:** Fall 2006 Undergraduate Sections by Size (excludes labs and independent study classes)



How to play the I&O formula game

- **Some winning strategies:**
  - **Students**
    - Work hard on improving retention rates so more freshman and sophomore students survive to be juniors and seniors.
    - Aggressively recruit more transfer students (somebody else has already taught them the low-income SCH).
    - Advise lower division students to complete lower division course requirements in their first two years.
    - Advise juniors and seniors to take electives in 3000 and 4000 level courses, not lower division courses, whenever possible.
    - Invest in increasing graduate enrollment. Most masters programs can handle more students without adding significantly to instructional cost.
  - Student recruitment, retention, and advising is everyone's job, not just because it is the right thing to do, but also because it is the financially necessary thing to do.

Teaching Experience Supplement



Teaching Experience

- This is a simple add-on to the Instruction and Operations formula.
- It provides an extra 10% formula income bonus for undergraduate credit hours that are taught by tenured and tenure track faculty.
- The intent is to reward institutions for NOT using TAs, Adjuncts, and other non-tenure line faculty to teach undergraduates.
- This past year, 29% of our undergraduate course sections with enrollment of 50 or more were taught by non-tenured or tenure track faculty.

Teaching Experience

- **Some winning strategies:**
  - Remember that the game is the number of weighted undergraduate credit hours taught by tenured and tenure-track faculty, not the number of sections they teach.
  - Be sure that all the **big** undergraduate classes, especially in highly weighted fields, are taught by tenured or tenure-track faculty.
  - Very large introductory lecture classes that generate a lot of credit hours should **always** be assigned to tenured/tenure-track faculty.
  - At the 10% teaching experience bonus level, there is still not enough extra funding on the table to offset the salary of senior faculty teaching lower division classes of 15 or 20.

Educational & General Space Support

- **Winning strategies:**
  - Remember, the money comes in according to what the model says you **should** have, not what you **do** have.
  - Ironically, because we have a space deficit according to the model we get funded for maintaining space we do not have.
  - Not a lot of growth strategies here, but student and employee growth helps to drive space needs.
    - The best approach is to control costs where you can and invest in prevention.
      - Be as energy efficient as possible.
      - Keep up with preventative maintenance.
    - We have been lucky because most of our buildings are new, but the 1970's vintage buildings have mechanical and electrical systems that are beginning to fail and will need replacement.
    - We will be needing to devote more funds to maintenance and repair as our physical plant ages.

To sum up...

- Instruction & Operations, Teaching Experience Supplement, and E&G Space Support are our three main formula income sources.
  - We have opportunities to maximize the formula income we generate by working smarter not harder.
  - Through careful analysis, we can discover creative ways to make the formulas work for us more efficiently, in ways that do not trade quality for income.
  - We need always to remember that we are all in this together working as a team to maximize revenue that benefits us all.

Overall Strategies...

- Remember that formula income is **not** generated on a “cash flow” basis. Nobody writes us a check in real time for each course as it is taught. It is the mechanism we have to influence the growth of our state appropriation each biennium.
- It is important to grow in weighted semester credit hours at a rate at least as fast as the state as a whole.
- Why? Because the formulas are used as a mechanism to ***distribute*** higher education funding among institutions.
- Formula distribution is a zero-sum game; universities that grow slower than average end up with smaller pieces of the funding pie, while fast growing institutions benefit.
- No growth or slow growth, given the way the formulas actually work to generate income, is a strategy that will inevitably lead to a bleak financial future.

The big picture...

- This presentation has focused on optimizing the formulas for existing operations, but the greater opportunities to grow formula funding lie in enrolling and retaining more students.
- Obviously, the more students we enroll, the greater the total number of weighted credit hours we produce. Investments in recruiting and retaining students are the most valuable investments we can make in our financial future.
- This helps not only on formula funding, but it also generates additional "cash flow" in terms of the designated tuition students pay per credit hour, that we generate as we go, and is real current spendable money.
- Finally, another valuable source of income growth investment is increasing external grants and contracts.
- Aggressively pursuing research expansion requires reassigned time for faculty. We need to understand that research reassigned time has class size implications. (Reducing faculty teaching load means bigger class sizes, unless external funding pays for faculty research release time.)
- As we pursue more research productivity, we also need to grow formula income.
- We need to think creatively and systematically about the most effective ways to pursue both goals.

Questions or comments?