Proposal Budget Formulas

The OR Budget Templates have been updated to simplify salary and effort entries, thus reducing the need to enter formulas. **You are no longer required to annualize salary** and can now enter effort in either **Person Months** or as **% Time or Effort**.

This said, you may find **some formulas are still helpful**:

For instance, if a Co-PI indicates that he will work 10% each Academic Year (AY) + 10% during 2 summer months, for the AY simply add 10% to a **% Time or Effort** row but for the summer, in a **Person Months** row, enter this formula:

=2*0.1

This indicates that the Co-PI will work 10% (or 0.1) of two months, or 0.20 months.

Personnel						*Enter effort either in Person Months (top section) or %*			
	Name/Role:	**Appt. Type**	**Effort Type**	**Base Salary**	**Months or %:**	***Person Months***			
						Per 1	**Per 2**	**Per 3**	**Per 4**
1	Co-PI - Cuthbert Calculus - SMR	9/12	SMR	166,425	Months	=2*0.1	0.20	0.20	0.20
2	GSR - TBD	12/12	CAL	64,990	Months	=9*0.25	2.25	2.25	2.25
	Personnel by %					***% Time or Effort***			
1	PI - Minerva McGonagall	12/12	CAL	202,080	%	15.0%	15.0%	15.0%	15.0%
2	Co-PI - Cuthbert Calculus - AY	9/12	AY	166,425	%	10.0%	10.0%	10.0%	10.0%
3	Co-PI - Henry Jones, Jr.	9/12	AY	166,425	%	10.0%	10.0%	10.0%	10.0%

Likewise, if you have a GSR who will commit 25% over 9 months, in a **Person Months** row enter this formula:

=9*0.25

This indicates the GSR will work 25% over 9 months (of a 12-month calendar year appointment), or 2.25 months.

Below are additional formulas you likely won't need if using the OR Budget Templates.

1. **Indirect costs** (also referred to as Facilities and Administrative costs)

Indirect costs are associated with the general operation of UC Davis and cannot be readily assigned to individual projects.

Indirect cost base [MTDC, TDC, or TC] * indirect cost rate = indirect costs

- **Indirect cost rate:** The proportion of indirect costs each program should bear using sound administrative principles.
    - The university commonly uses federally negotiated rates (NICRA) though rates may vary based on sponsor policy and program guidelines.
        - If a sponsor specifies a different rate, an exception to the NICRA rates may need to be approved by the UC Office of the President (UCOP).

- **Indirect cost base:** The amount of direct costs to which the indirect cost rate is applied.

  - The most commonly used base at UC Davis is **Modified Total Direct Costs (MTDC).**
    - All negotiated rates at UC Davis are applied on an MTDC base as defined in our Negotiated Indirect Cost Rate Agreement (NICRA).
    - MTDC consists of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first $25,000 of each subaward (regardless of the period of performance of the subawards under the award).
    - MTDC excludes equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of $25,000.
    - MTDC can actually vary by organization. "MTDC" can mean any modified base. Check the specific agency guidelines for instructions on budget calculation.
      - Example: NIH training grants state 8% MTDC, but only tuition and equipment are excluded.
    - **F&A Cost formula based on MTDC:** Calculate the Total Direct Costs and subtract the excluded items listed above (or identified by the sponsor):

      a. TDC – [excluded items] = MTDC Base
      b. MTDC Base x F&A rate = F&A Costs

  - **Total Direct Costs (TDC):** This base is typically used when a sponsor declines to pay UC Davis's federally approved indirect cost rate and an indirect cost waiver is granted by the University.
    - TDC includes all the direct costs being charged to the sponsor. Nothing is excluded from the base prior to calculating the indirect costs except:
      - Subawards to other UC campuses
      - Service agreements to other UC campuses
    - **F&A Cost formula based on TDC:** Indirect costs based on TDC do not include subawards or service agreements to other UC campuses.

    a. TDC – [subawards & service agreements to UC campuses] = TDC Base
    b. TDC Base x F&A rate = F&A Costs

  - **Total Costs (TC):** This base is used when a sponsor states that only a certain percentage of Total Project Costs can be charged for indirect (F&A) costs.
    - As with TDC, nothing is excluded from the base prior to calculating the indirect costs except:
      - Subawards to other UC campuses
      - Service agreements to other UC campuses
    - Use this formula if **direct costs are known**:

    a. TDC – [subawards & service agreements to UC campuses] = TDC Base
    b. (TDC Base / (1-F&A Rate)) * F&A Rate = F&A Costs

- Example: TDC Base = $100,000 and the F&A rate is 25%.
  ($100,000/(1-0.25)) * 0.25 =
  ($100,000/0.75) * 0.25 =
  $133,333 * 0.25 = $33,333

- Use this formula if **only the total budget limit is known**:

Total Budget Limit * F&A Rate = F&A Costs

- Example: Your limit is $100,000 and the F&A rate is 10% TC.
  $100,000 x 10% = $10,000 *(and $90,000 in Direct Costs)*

- **Total Federal Funds (TFF)** – best way to calculate these is to use OR Budget Template **F (USDA)**
  - Most US Dept of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) projects require that we take the lesser of:
    - 30% of the Total Federal Funds (TFF) awarded (which is equal to TC), and
    - the applicable NICRA rate.
  - UCD shares the indirect costs with any subawards. If each subaward is calculating at 30% TC, we only calculate on UCD's costs. If, however, a subaward is requesting less than 30% TC, we add the difference to UCD.

2. Split Rates

The OR Budget Templates auto-calculate split rates, which occur when a project period spans two fiscal periods that have differing indirect cost rates. If you need to calculate them manually though, this is how you would do it for a 12-month period of performance:

1. Project Period Costs/# of project period months [i.e, 12 for annual project period] = One month of costs
   a. If the period of performance were shorter, say, 6 months, then you would divide by 6.

2. Months before end of Fiscal Year (FY) (before June 30th) = Months at Rate 1
3. One Month of Costs * Months at Rate 1 * Rate 1 = F&A costs at Rate 1

4. Months after start of next FY (after July 1st) = Months at Rate 2
5. One Month of Costs * Months at Rate 2 * Rate 2 = F&A costs at Rate 2

6. F&A costs at Rate 1 + F&A costs at Rate 2 = Cost for Project Year (PY)

Shortcut: *(Project Period Costs/# of project period months * Months at Rate 1 * Rate 1) + (Project Period Costs/# of project period months * Months at Rate 2 * Rate 2) = F&A costs for PY*

Example:

You are working on a budget for a research project with a start date of September 1, 2023 and end date of August 31, 2024. The appropriate F&A Rate is 60% for FY 2023-2024 and 61% for FY 2024-2025 with an MTDC Base. The MTDC is $300,000.

1. Determine one month of costs.
    - $300,000/12 = $25,000
2. Determine the # of months at the first rate.
    - How many months occur before 6/30/2024? 10.
3. Calculate the F&A Costs at Rate 1.
    - $25,000 * 10 * 0.6 [for 60%] = $150,000
4. Determine the # of months at the second rate.
    How many months occur on/after 7/1/2024? 2.
5. Calculate the F&A Costs at Rate 2.
    - $25,000 * 2 * 0.61 [for 61%] = $30,500
6. Calculate the F&A costs at both rates.
    - $150,000 + 30,500 = $180,500

Shortcut: ($300,000/12 * 10 * 0.6) + (300,000/12 * 2 * 0.61) = $180,500