## $\mathrm{a} / \mathrm{s} / \mathrm{m}$ EA-2L Exam Course Outline \& Problems



David B. Farber, A.S.A.

## ABOUT THIS MANUAL

This manual consists of my course outline and review questions that have been inserted into the various sections of the outline. It reflects the course syllabus as published in July. Most, but not every topic is covered in this outline. Any changes to the syllabus that might be published in the January, Joint Board program document are not reflected in this outline. Please check for updates on the A.S.M. web site.

This edition has been updated to correct any errata and add new clarifying material. This edition includes any cost of living increases in limitations that are updated annually by the Department of the Treasury and PBGC. (Note that while these limitations are noted in the body of the sample questions in this manual, they would not be included in the body of an actual exam question since tables of historical limitations and factors needed to solve the problems are provided with the exam - see the Joint Board program document).

This manual assumes knowledge of the material covered on the EA-1 exam. Note that the pension law exam (EA-2L) does not presume knowledge of the material from the funding exam (EA-2F).

As always, I expect that there will be some last minute changes to the syllabus, and that errata will occur, so please check the A.S.M. website below.

David B. Farber

Please check A.S.M.'s web site at www.studymanuals.com for errata and updates. If you have any comments or reports of errata, please
e-mail us at mail@studymanuals.com.

> ©Copyright by Actuarial Study Materials (A.S.M.), PO Box 69 , Greenland, NH 03840 . All rights reserved. Reproduction in whole or in part without express written permission from the publisher is strictly prohibited.

## Guide for using the EA-2L Outline

Some of the syllabus items for the EA-2L exam are rarely tested. This guide can be used to help you focus on what are typically the most important parts of the outline.

Pages $1-40$ : Vesting and accrued benefit rules are always tested on this exam. Expect about 4 to 6 questions on this material.

Pages $41-44$ : There are typically 2 or 3 questions dealing with spousal benefits.
Pages 45 - 123: These sections deal with specialized rules that are part of the calculation of benefits that can be distributed to participants. There are typically 6 to 10 questions dealing with these sections.

Pages 124 - 226: This is one of the most tested parts of the outline. A lot of time should be devoted to the nondiscrimination items in these sections. This often makes up about $25 \%$ of the exam questions.

Pages 227 - 249: The permitted disparity rules have been rarely tested during the past 16 to 18 years. Although the topic remains on the syllabus, this might be a section to skip until all other sections are understood, as the time spent to understand the topic probably outweighs the probability of a question appearing on the exam.

Pages 250 - 293: Funding based limits (IRC section 436) is typically tested in about $3-5$ exam questions.

Pages 294 - 335: There are typically 1 - 3 exam questions dealing with multiemployer plan withdrawal liability.

Pages 336 - 439: This is the other really big topic (typically about $25 \%$ of the exam - plan terminations and PBGC rules).

Pages 440 - 452: These miscellaneous topics have varying probabilities of being tested. There are never many points devoted to any of these topics. Due to the primarily factual nature of these topics, they are generally best left to the later stages of studying for this exam.

Pages 454 - 460: The MAP-21 stabilization rules might show up in a few questions (usually requiring you to choose whether or not to use the stabilized interest rates). The most important thing to know is when to use MAP-21 rates and when not to use them. The rules have been mentioned throughout the outline, but this section goes into more detail.

Pages 473-474: Commutation functions will likely show up in several questions, and this section provides a brief review of how to use them.

Pages 475 - 476: Constructive ownership rules have only been tested a couple of times within the past several years.

## Accrued Benefits

Supplemental reading: IRC sections 411(b), 411(c), 411(d)(6) Treasury regulations 1.411(d)-3, 1.411(d)-4 Revenue Ruling 81-11

- All benefit formulas must satisfy at least one of three accrual rules.
- $1331 / 3 \%$ rule
- No accrual can exceed $1331 / 3 \%$ of any prior year accrual. This is applied without regard to plan amendments (treat plan amendments as if they have always been in effect for purposes of satisfying the $1331 / 3 \%$ rule).
- $3 \%$ rule
- The accrued benefit at any point in time must be at least as large as $3 \%$ of the total retirement benefit, multiplied by years of accrual service to date. This rule does not apply if participants can have more than $33^{1 / 3}$ years of accrual service at retirement.
- Fractional rule
- The accrued benefit at any point in time must be at least as large as the total retirement benefit, multiplied by years of accrual service to date and divided by total years of accrual service at retirement. IRC section 411 (b)(1)(C) indicates accrual service to be years of plan participation; however, a definition of accrual service providing more years than just years of plan participation (such as all years of service with the employer) will provide for an accrued benefit greater than using plan participation, and would satisfy the minimum accrual rules. The total retirement benefit (before the accrual fraction is applied) is determined using the same rate of compensation as would be used for the normal retirement benefit (but not taking into account any compensation paid more than 10 years prior to separation of service).
- Note for exam purposes: The fractional rule is really a method. So, it only applies when the plan defines the accrued benefit in terms of the fractional rule, rather than the accrued benefit earned as the benefit formula is written (which is the general condition of the exam). As a result, it is not necessary (although not incorrect) to check to see if a benefit formula satisfies the fractional rule as you would do with the other accrual rules. Note that while that check is performed in many of the sample questions in this outline (so you can see how it might be applied), it is not necessary (and you would be wasting your time to do this on the exam). If such a check does not satisfy the $3 \%$ rule, it will not satisfy the fractional rule.
- These rules do not apply to fully insured plans.
- The accrued benefit cannot be decreased on account of increases in age or service (this includes a decrease in a defined contribution plan allocation formula due to the attainment of a particular age or a specific amount of service). The accrued benefit cannot decrease due to decreases in compensation because that would be deemed a decrease in accrual due to additional service.
- Accrual cannot cease due to attainment of a specific age.
- Accrual can cease due to satisfying a maximum service requirement.
- A participant can be forced by the plan to receive their benefit in the form of a lump sum (valued under IRC section $417(\mathrm{e})(3)$ ) if the total lump sum is no larger than $\$ 5,000$. See IRC section 411(a)(11). Note that technical corrections to the Pension Protection Act of 2006 (PPA) allow a forced lump sum payment of no more than $\$ 5,000$ even if the plan is subject to the lump sum distribution restrictions of IRC section 436.
- Years of service for benefit accrual
- A year of service can be defined as a year in which the employee works at least 1,000 hours, as is used for minimum vesting requirements.
- If the elapsed time method is used to determine the accrued benefit, pro-rated benefits are based upon the actual period of time worked (including fractional years).
- The definition of a year of service for benefit accrual can be different from the plan's definition for vesting.
- For participants who have previously received distributions (such as terminated and rehired participants), the service with regard to the benefits accrued and paid can be disregarded if the participant does not repay the distribution (with interest) to the plan. This is the case even if the participant was not fully vested in the accrued benefit that they were previously paid. See IRC sections 411(a)(7)(B) and (C).
- $\quad$ Accrued benefit in cash balance plans (Treasury regulation 1.411(a)(13)-1)
- The accrued benefit is equal to the hypothetical account balance under the plan.
- The hypothetical account balance is equal to the sum of the contributions credited to the account and the interest credited to the account.
- The interest credited to the account must be a rate specified in the plan document that reflects an interest rate no greater than a market rate of return. Acceptable interest crediting rates include:
$>\quad$ Actual asset rate of return - this could include a floor (minimum) on the interest rate.
$>$ Fixed rate (prior to 2015, the fixed rate maximum was $5 \%$, and beginning in 2016 the fixed rate maximum is $6 \%$ ).
- If the plan has at least two benefit formulas, and any part of the accrued benefit is derived from the hypothetical account balance, then the entire accrued benefit must be vested according to the hybrid plan rules ( $100 \%$ vested after no more than 3 years). If a plan defines the benefit as the larger of two benefit formulas, one of which uses a hypothetical account balance, then the hybrid plan vesting rules must be used even if the larger benefit is not based on the hypothetical account balance.
- Accrued benefit in a floor offset plan
- A floor offset plan consists of both a defined benefit plan and a defined contribution plan.
- The accrued benefit for a participant in a defined benefit plan that is part of a floor offset plan is equal to the accrued benefit determined by the benefit formula, reduced by the benefit that is actuarially equivalent to the contributions made by the employer for that participant in the defined contribution plan.
- For example, if a participant is age 35 with 6 years of service, the defined benefit plan formula provides for a benefit payable beginning at age 65 of $\$ 150$ per month per year of service, the defined contribution plan account balance is currently $\$ 3,000$, and actuarial equivalence is based on $5 \%$ interest and a life annuity at age 65 equal to 10 , then the defined benefit plan accrued benefit would be determined as follows:
$\$ 150 \times 6$ years of service $=\$ 900$
$\$ 3,000 \times 1.05^{30} \div(10 \times 12)=\$ 108$
Defined benefit accrued benefit $=\$ 900-\$ 108=\$ 792$

Note that the factor used to convert the account balance to a life annuity is equal to the interest accumulation factor for 30 years (from age 35 to age 65), divided by the life annuity factor at age 65 , divided by 12 (to convert the annuity to a monthly benefit).

- Accrued benefit from mandatory employee contributions (IRC section 411(c)(2))
- Prior employee contributions (contributions made before the current valuation date) must be accumulated with interest using $120 \%$ of the Federal mid-term rate in effect as of the beginning of each plan year, through the current valuation date (creating a theoretical account balance for the employee contributions).
- In order to determine the portion of the accrued benefit attributable to the employee contributions, the theoretical account balance is increased from the valuation date to normal retirement date using the applicable interest rate used under IRC section 417(e)(3). There is no increase due to mortality. This accumulation is then converted to a benefit at normal retirement age using the applicable interest rate (the IRC section 417(e)(3) non-stabilized segment interest rates) and the applicable mortality table (the IRC section 430 applicable mortality table).
- The accrued benefit attributable to employee contributions is always $100 \%$ vested. The balance of the accrued benefit is subject to the vesting schedule.
- The plan accrued benefit cannot be less than the accrued benefit attributable to the employee contributions.
- The accrued benefit attributable to employee contributions cannot be used to satisfy the topheavy minimum benefit accrual requirement.
- Note: voluntary after-tax employee contributions are simply kept in an account balance and allocated actual trust earnings each year. These contributions do not have any impact on the amount of benefit provided under the defined benefit plan - they are treated like defined contribution plan account balances.
- Accrued benefits may not be eliminated under IRC section 411(d)(6). Regulation 1.411(d)-3 and 4 provide detailed anti-cutback rules.
- Future benefit accruals may be reduced. Note that this could cause a nondiscrimination issue under IRC section 401(a)(4), but is not a problem under IRC section 411(d)(6).
- In general, optional forms of benefit and the optional ages at which this benefit can be received may not be eliminated with regard to benefits already accrued. The plan can be amended with regard to these options to remove them with regard to future benefit accruals.
- Otherwise protected benefits that both create a significant burden to the plan and its participants (facts and circumstances), and that affects the rights of the participants in no more than a de minimis manner may be eliminated. (See Treasury regulation 1.411(d)-3(e).)
- Example: A plan offers a $50 \%$ joint and survivor annuity with a pop-up feature (if the spouse dies first, the benefit for the participant "pops up" to the life annuity benefit that the participant would have received if the $50 \%$ joint and survivor annuity had not been elected). The plan can be amended to remove the pop-up feature without violating the protected benefits rules.
- Redundant optional forms of benefit may be eliminated
- J\&S options with $50 \%$ to $100 \%$ of benefit payable to survivor are in same family
- J\&S options with less than $50 \%$ of benefit payable to survivor are in same family
- Term certain and life annuity of no more than 10 years are in same family
- Term certain and life annuity of more than 10 years are in same family
- Optional benefits can be eliminated as long as core options remain, for categories with a core option
- A life annuity is a core option
- A $75 \% \mathrm{~J} \& S$ is core a option (if a plan has both a $50 \% \mathrm{~J} \& S$ and $100 \% \mathrm{~J} \& S$ option, this satisfies the $75 \%$ requirement)
- Term certain and life annuity of 10 years
- Most valuable option for participants with short life expectancy
- Types of benefits not subject to IRC section 411(d)(6) that can be eliminated
- Death benefits
- Disability benefits
- Early retirement window benefits
- Changes in early retirement reduction factors are subject to the anti-cutback rules.
- The actual early retirement benefit that must be paid at the time of actual retirement is the greater of the benefit payable using the new factors or the benefit accrued as of the date of the amendment changing the factors, applying the old factors to that benefit.
- Changes in actuarial equivalence assumptions are generally subject to the anti-cutback rules. However, a change in the interest rate under IRC section 417(e)(3) beginning in 2008 due to the required use of segmented interest rates under IRC section 430(h)(2)(C) is deemed not to be a violation of IRC section 411(d)(6) - see Revenue Ruling 2007-67, issue 3.
- Benefits transferred to another plan of the same employer are still subject to the requirements of IRC section 411(d)(6).


## Question 7

Which (if any) of the following benefit formulas satisfy the minimum accrual rules of IRC section 411 (b)?
I. $1.25 \%$ of final compensation for each of the first 5 years of service, plus $1.00 \%$ of final compensation for each of the next 15 years of service, plus $1.50 \%$ of final compensation for each of the next 10 years of service
II. $2.00 \%$ of final compensation for each of the first 10 years of service, plus $2.50 \%$ of final compensation for each of the next 5 years of service, plus $3.00 \%$ of final compensation for each of the next 5 years of service
III. $2.25 \%$ of final compensation for each of the first 5 years of service, plus $2.00 \%$ of final compensation for each of the next 15 years of service, plus $2.75 \%$ of final compensation for each of the next 10 years of service

## Solution to question 7

Formula I: The $1331 / 3 \%$ rule is not satisfied because $1.50 \% / 1.00 \%=150 \%>1331 / 3 \%$. The $3 \%$ rule is checked by calculating the total benefit at retirement (for someone with maximum 30 years of service). This benefit is $36.25 \%$ of final compensation ( $1.25 \% \times 5$ years, plus $1 \% \times 15$ years, plus $1.5 \% \times 10$ years). $3 \%$ of $36.25 \%$ is $1.0875 \%$. This is the minimum annual accrual under the $3 \%$ rule. Clearly, since $1.25 \%$ is the accrual for each of the first 5 years, the $3 \%$ rule is satisfied for those years. The next break point in the benefit formula is after 20 years of total service. The benefit under the plan formula at that point is $21.25 \%$ of final compensation ( $1.25 \% \times 5$ years, plus $1 \% \times 15$ years). The minimum accrual after 20 years under the $3 \%$ rule is $21.75 \%$ of final compensation ( $1.0875 \% \times 20$ years). The $3 \%$ rule is not satisfied.
The annual accrual under the fractional rule is $1.208 \%$ of final compensation $(36.25 \% \times$ $1 / 30$ ). After 20 years, the total accrual should be at least $24.16 \%$ of final compensation, not $21.25 \%$ as calculated above. The fractional rule is not satisfied.

Formula II: The $1331 / 3 \%$ rule is not satisfied because $3.00 \% / 2.00 \%=150 \%>1331 / 3 \%$.
The $3 \%$ rule is checked by calculating the total benefit at retirement (for someone with maximum 20 years of service). This benefit is $47.50 \%$ of final compensation ( $2.00 \% \times 10$ years, plus $2.50 \% \times 5$ years, plus $3.00 \% \times 5$ years). $3 \%$ of $47.50 \%$ is $1.425 \%$. This is the minimum annual accrual under the $3 \%$ rule. Clearly, each year's accrual exceeds this amount. The $3 \%$ rule is satisfied.
The annual accrual under the fractional rule is $2.375 \%$ of final compensation $(47.50 \% \times$ $1 / 20$ ). This exceeds the accrual under the formula for each of the first 10 years. The fractional rule is not satisfied.

Formula III: The $1331 / 3 \%$ rule is not satisfied because $2.75 \% / 2.00 \%=1371 / 2 \%>1331 / 3 \%$.
The $3 \%$ rule is checked by calculating the total benefit at retirement (for someone with maximum 30 years of service). This benefit is $68.75 \%$ of final compensation ( $2.25 \% \times 5$ years, plus $2 \% \times 15$ years, plus $2.75 \% \times 10$ years). $3 \%$ of $68.75 \%$ is $2.0625 \%$. This is the minimum annual accrual under the $3 \%$ rule. Clearly, since $2.25 \%$ is the accrual for each of the first 5 years, the $3 \%$ rule is satisfied for those years. The next break point in the benefit formula is after 20 years of total service. The benefit under the plan formula at that point is $41.25 \%$ of final compensation ( $2.25 \% \times 5$ years, plus $2 \% \times 15$ years). The minimum accrual after 20 years under the $3 \%$ rule is also $41.25 \%$ of final compensation ( $2.0625 \% \times 20$ years). The accrual for each of the last 10 years exceeds the $2.0625 \%$ minimum. The $3 \%$ rule is satisfied.
The annual accrual under the fractional rule is $2.2917 \%$ of final compensation ( $68.75 \% \times$ $1 / 30$ ). After 20 years, the total accrual should be at least $45.83 \%$ of final compensation, not $41.25 \%$ as calculated above. The fractional rule is not satisfied.

## Question 8

Which (if any) of the following benefit formulas satisfy the minimum accrual rules of IRC section 411 (b)?
I. $\quad \$ 15$ per year of service for the first 15 years, plus $\$ 22$ per year of service for each of the next 15 years
II. $\$ 15$ per year of service for the first 25 years, plus $\$ 22$ per year of service for each of the next 5 years
III. $\$ 20$ per year of service for the first 10 years, plus $\$ 22$ per year of service for each of the next 10 years, plus $\$ 26$ per year of service for each of the next 10 years

## Solution to question 8

I. Assume participant will have 30 years of service at retirement.
$3 \%$ rule: $\quad$ retirement benefit $=(15)(15$ years $)+(22)(15$ years $)=555$
$3 \%$ of $555=16.65$
Not satisfied since the accrual in each of the first 15 years is less than 16.65 .
$133 \%$ rule: $\quad 22 / 15=1.47>1.3333$. So, this rule is not satisfied.
Fractional: $\quad 555 \times 1 / 30=18.50$. Not satisfied since the accrual in each of the first 15 years is less than 18.50 .
Therefore, this does not satisfy the accrual rules.
II. Assume participant will have 30 years of service at retirement.
$3 \%$ rule: $\quad$ retirement benefit $=(15)(25$ years $)+(22)(5$ years $)=485$
$3 \%$ of $485=14.55$
$3 \%$ rule is satisfied.
Therefore, this does satisfy the accrual rules.
III. $\quad 133 \%$ rule: $26 / 20=1.3<1.3333$. So, this rule is satisfied.

Therefore, this does satisfy the accrual rules.

## You have reached the end of the Sample for Exam EA-2L

Ready to view more?

ASM has been helping students prepare for actuarial exams since 1983. Dedicated to helping future actuaries achieve their true potential, ASM ensures that each study manual is created with quality and covers a complete array of topics. ASM also offers a variety of add-on material and study programs to help get you to your next destination.


Go to the Actuarial Bookstore website and click in the menu bar underneath the product display to find out more about the EA-2L Study Manual and related products.

Take the next step in your career now by purchasing the full EA-2L Study Manual.

