```
plot(allMetricsAndQuestions["numberJavaFiles"], "Java Files", "Java Files", ""
In [41]:
                                              Java Files
          18
          16
          14
          12
          10
           8
           6
           4
           2
                   2014
                             2015
                                        2016
                                                  2017
                                                             2018
                                                                       2019
                                                                                  2020
          plot(allMetricsAndQuestions["readability"], "Readability per Class", "", "",
In [42]:
          "")
                                         Readability per Class
          0.250
          0.225
          0.200
          0.175
          0.150
          0.125
          0.100
          0.075
                     2014
                               2015
                                                   2017
                                                              2018
                                                                        2019
                                         2016
                                                                                  2020
          plot(allMetricsAndQuestions["CountLine"], "Physical Lines per Class", "", "",
In [43]:
                                      Physical Lines per Class
          200
          175
          150
          125
          100
           75
           50
           25
                    2014
                              2015
                                        2016
                                                   2017
                                                             2018
                                                                       2019
                                                                                  2020
```

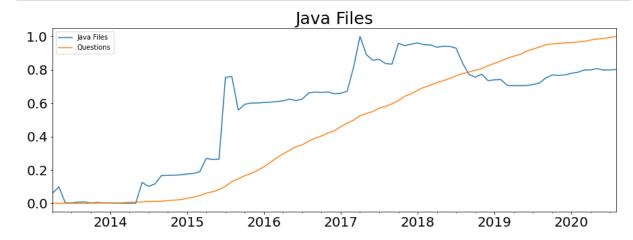
```
plot(allMetricsAndQuestions["CountLineCode"], "LOC per Class", "LOC per Class"
In [44]:
                                           LOC per Class
          140
          120
          100
           80
           60
           40
           20
                   2014
                             2015
                                       2016
                                                  2017
                                                            2018
                                                                      2019
                                                                                2020
         plot(allMetricsAndQuestions["CountLineComment"], "CLOC per Class", "", "", "")
In [45]:
                                          CLOC per Class
          35
          30
          25
          20
          15
          10
           5
           0
                  2014
                            2015
                                       2016
                                                 2017
                                                           2018
                                                                      2019
                                                                                2020
         plot(allMetricsAndQuestions["CountClassCoupled"], "CBO per Class", "", "", "")
In [46]:
                                          CBO per Class
          8
          7
          6
          5
          4
                 2014
                            2015
                                      2016
                                                           2018
                                                                     2019
                                                2017
                                                                                2020
```

```
plot(allMetricsAndQuestions["CountClassDerived"], "NOC per Class", "", "")
                                          NOC per Class
          0.05
          0.04
          0.03
          0.02
          0.01
          0.00
                                                 2017
                   2014
                             2015
                                       2016
                                                           2018
                                                                    2019
                                                                              2020
         plot(allMetricsAndQuestions["CountDeclMethodAll"], "RFC per Class", "", ""
In [48]:
                                          RFC per Class
          22
          20
          18
          16
          14
                  2014
                            2015
                                      2016
                                                2017
                                                          2018
                                                                    2019
                                                                              2020
         plot(allMetricsAndQuestions["MaxInheritanceTree"], "DIT per Class", "", ""
In [49]:
                                          DIT per Class
          1.5
          1.4
          1.3
          1.2
          1.1
                  2014
                            2015
                                      2016
                                                2017
                                                                    2019
                                                                              2020
                                                          2018
```

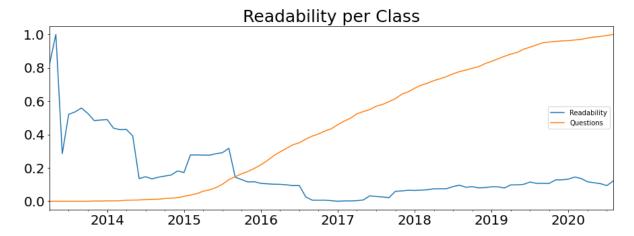
```
plot(allMetricsAndQuestions["PercentLackOfCohesion"], "LCOM per Class", "", ""
In [50]:
                                          LCOM per Class
          35
          30
          25
          20
          15
          10
           5
           0
                  2014
                             2015
                                       2016
                                                 2017
                                                            2018
                                                                      2019
                                                                                2020
         plot(allMetricsAndQuestions["SumCyclomatic"], "WMC per Class", "", "", "")
In [51]:
                                           WMC per Class
          20.0
          17.5
          15.0
          12.5
          10.0
           7.5
           5.0
           2.5
                    2014
                              2015
                                                  2017
                                        2016
                                                            2018
                                                                      2019
                                                                                 2020
         plot(allMetricsAndQuestions["CountDeclClass"], "Classes", "", "")
In [52]:
                                               Classes
          30
          25
          20
          15
          10
           5
                  2014
                             2015
                                       2016
                                                 2017
                                                                      2019
                                                            2018
                                                                                2020
```

## Plotting metrics and questions

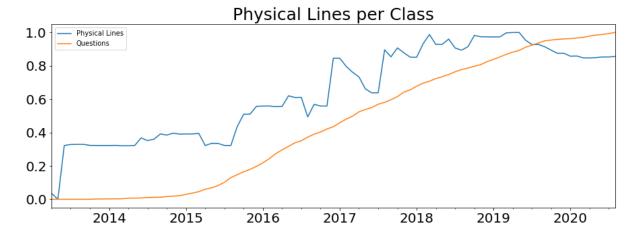
```
In [53]: def plot(metrics, questions, metric, title, ylabel, xlabel):
    subplot = metrics.plot(figsize=(15,5), fontsize=20, legend=True, label=met
ric)
    subplot = questions.plot(figsize=(15,5), fontsize=20, legend=True, label=
"Questions")
    subplot.set_title(title, fontsize=25)
    subplot.set_ylabel(ylabel, fontsize=20)
    subplot.set_xlabel(xlabel, fontsize=20)
# subplot.figure.savefig(metric+".pdf",bbox_inches = 'tight')
```



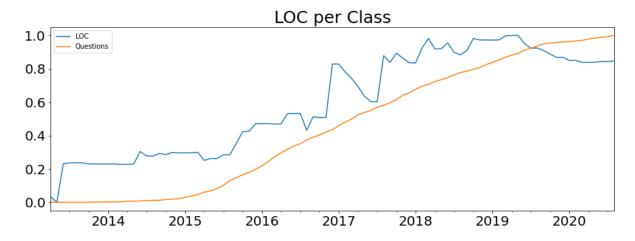
In [55]: plot(AllMetricsAndQuestionsNormalized["readability"], AllMetricsAndQuestionsNo
 rmalized["questions"], "Readability", "Readability per Class", "", "")



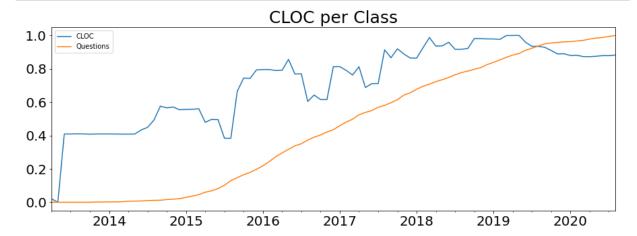
In [56]: plot(AllMetricsAndQuestionsNormalized["CountLine"], AllMetricsAndQuestionsNorm
 alized["questions"], "Physical Lines", "Physical Lines per Class", "", "")



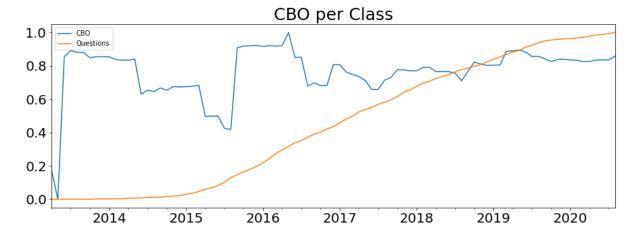
In [57]: plot(AllMetricsAndQuestionsNormalized["CountLineCode"], AllMetricsAndQuestions
Normalized["questions"], "LOC", "LOC per Class", "", "")



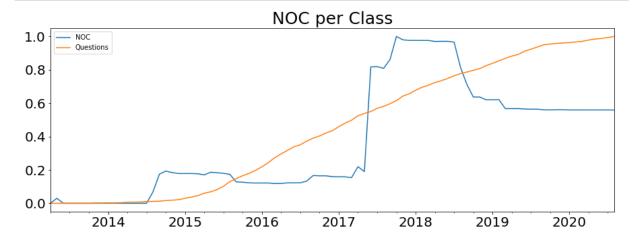
In [58]: plot(AllMetricsAndQuestionsNormalized["CountLineComment"], AllMetricsAndQuestionsNormalized["questions"], "CLOC", "CLOC per Class", "", "")



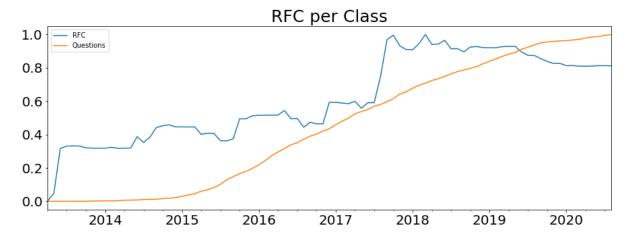
In [59]: plot(AllMetricsAndQuestionsNormalized["CountClassCoupled"], AllMetricsAndQuest
ionsNormalized["questions"], "CBO", "CBO per Class", "", "")



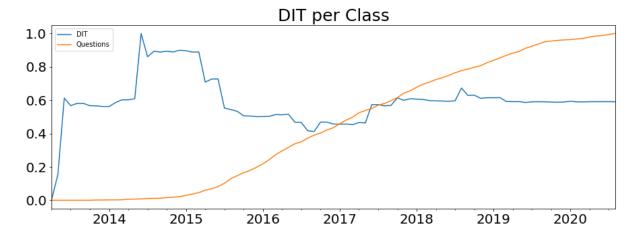
In [60]: plot(AllMetricsAndQuestionsNormalized["CountClassDerived"], AllMetricsAndQuest
 ionsNormalized["questions"], "NOC", "NOC per Class", "", "")



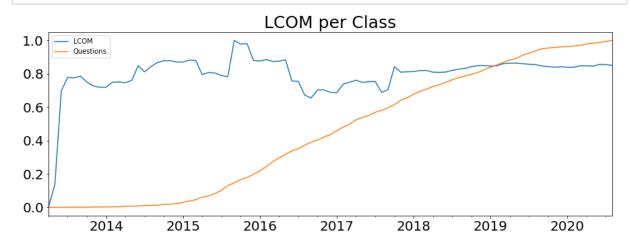
In [61]: plot(AllMetricsAndQuestionsNormalized["CountDeclMethodAll"], AllMetricsAndQuestionsNormalized["questions"], "RFC", "RFC per Class", "", "")



In [62]: plot(AllMetricsAndQuestionsNormalized["MaxInheritanceTree"], AllMetricsAndQuestionsNormalized["questions"], "DIT", "DIT per Class", "", "")



In [63]: plot(AllMetricsAndQuestionsNormalized["PercentLackOfCohesion"], AllMetricsAndQ
 uestionsNormalized["questions"], "LCOM", "LCOM per Class", "", "")



In [64]: plot(AllMetricsAndQuestionsNormalized["SumCyclomatic"], AllMetricsAndQuestions
 Normalized["questions"], "WMC", "WMC per Class", "", "")

